

STRATEGY AND FINANCIAL
PERFORMANCE OF SOUTH AFRICAN
INDUSTRIAL COMPANIES

Grenville Stafford Andrews.

A Thesis submitted to the Graduate School of
Business Administration, University of Cape
Town, in fulfilment of the requirements for
the Degree of Doctor of Philosophy.

April, 1979.

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AFRICAN INDUSTRIAL COMPANIES.

Grenville S. Andrews

A B S T R A C T

This thesis analyses the impact of strategy on the financial performance and risk of industrial firms quoted on the Johannesburg Stock Exchange over the period 1970 - 1976. This is the first study investigating the impact of strategy on economic performance in a developing economy and which utilizes a managerially orientated view of diversification to assess the association between strategy, performance and systematic risk.

The strategic categorization scheme employed is based on a methodology which is common to exploratory studies carried out in more developed economies.

Firms were placed into strategic categories based on the extent, manner and type of diversification that they exhibited. Four major and nine sub-categories were identified.

The results showed that South African industrial firms are not highly diversified and the composition of the firms suggest that they are at a stage of development that is comparable to that of the developed economies in 1950 when measured on the extent and manner of diversification.

The growth and return performance of both major and sub-categories were analysed and a number of hypotheses were tested. The results showed that there are significant differences in performance between the categories and that utilizing the strategy classification system it was possible to distinguish between categories. In addition, the ranking of strategies, based on performance was found to differ significantly from the United States research findings.

An important aspect of the study was the evaluation of risk based on strategy. A number of overseas studies been unable to explain the impact of strategy on diversification. By employing techniques developed in the finance area, this study has shown that the strategic categories differ in both levered systematic

/risk and in

risk and in unlevered systematic risk.

It was concluded that strategy does affect systematic risk and that when the risk surrogate is adjusted for leverage, strategy has an important effect on the business risk component.

The findings have important implications for both managers, educationalists and academics. The research has provided insight into the effect of strategy on corporate value and performance and forms a basis from which future research into economic performance in the developing economy may flow.

To Barbara, Felicity and Robert,

my own attempts to move to a more

diversified portfolio.

ACKNOWLEDGEMENTS

A large number of individuals contributed to the final completion of this thesis. I am deeply indebted to the Professors and Lecturers with whom I had the privilege of studying and discussing Business Management. I received considerable support and advice from Andre Morkel, Chris van Veijerein and Ian MacMillan at the University of South Africa, Simon Biesheuvel, David Limerick, Trent Olivier, Arnt Spandau, Peter Lewin, Charles Cogill and Paul Strebel at the University of the Witwatersrand.

My Supervisor at the Graduate School of Business Administration, University of Cape Town, Professor John Simpson, played a vital role in the compilation of this study. His extraordinary willingness to accommodate my demands on his time and to facilitate the completion of the theses has resulted in a sense of gratitude and appreciation.

Professor Gideon Jacobs at the Wits Business School was also able to arrange my teaching commitment in such a way to enable me to complete this thesis at the Graduate School of Business Administration, Harvard University. I am very grateful for his assistance.

/At Harvard

At Harvard I was very fortunate to be able to discuss my thesis problems with faculty members and I benefitted greatly by attending the courses and from the discussions with these men who were so willing to be of assistance.

I owe a great debt to Professors Joseph Bower, Robert Glauber, Chris Christensen, Norman Berg, Robert Buzzell, Michael Porter, Malcolm Salter, Kenneth Hatten and William White.

To the people who typed this thesis I wish to give my special thanks. Linda Kelly and Sandy Burke at Harvard Business School, Erica Haamerslag and Angele Hedley at the Graduate School of Business at the University of the Witwatersrand.

Another body of people must also be acknowledged for their support and assistance. My mother, Bob and Marjorie Swan, Reg Allen and fellow MBA and Doctoral students, Dan Remenyi, Maurice Kilduff, Nigel Matthews, Barry van Breda, Israel Shaked, Eduardo Monteil, Roger Davis, Richard Linowes and Barry Smith provided valuable advice and support.

To my wife, Barbara and my children Felicity and Robert, I owe a special word of thanks. Barbara's support, encouragement and assistance during crisis periods was of tremendous value. The writing of a thesis in a small apartment during a Boston winter also made special demands

on my children who tried very hard to co-operate
with my demands for lower noise levels.

Despite the assistance and generosity of the many
people who contributed their time and support, I remain
wholly responsible for this study except where stated
and acknowledged.

Grenville S. Andrews
Soldiers Field Park
Boston, Massachusetts.
April, 1979.

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I. INTRODUCTION, SCOPE AND BACKGROUND

I.1 Introduction

The subject of this study is the manner in which complex organizations have decided to develop strategically and the performance of these organizations as measured by financial performance and risk. This is sometimes referred to as policy formulation and implementation. The subject is of interest to both the managers of these complex organizations and to outsiders such as investors and researchers. The study can be described as an analysis of "top management"; "decision-making processes"; or even "an evaluation of strategic selection".

Such a study which examines the evolution of the relationship between a particular environment and groups of firms which have selected similar patterns of development of considerable interest. It seems that as industrial firms grow, they become more complex and the more complex an organization becomes, the more difficult it is to assure that resources are obtained and used effectively and efficiently in the accomplishment of the organizations objectives.¹ It seems logical to assume that if the environment in which the firm operates, is different in some way, or is changing and developing, then studies should be carried out in these different environments to establish the unique relationships which may or may not arise. However useful and interesting such a study may be, the scope is beyond that

which can be handled by a single researcher. What is required to achieve and generate this body of knowledge, is a series of studies each of which focusses on a particular environment. The critical element selected for this study is the "developing economy". To facilitate understanding of the nature and implications of the study a brief discussion of what can be termed the "philosophy of research in general management" follows.

Men have been making strategic policy decisions for the organizations which they have controlled for a few thousand years. Many of these individuals have proved to be extremely successful in this role. Yet others have shown themselves to be incompetent. The successful leaders appear to adopt strategies and actions which, although based on the same information as that available to the unsuccessful leaders, are shaped by a "knowledge" and "skill" which is not generally available. Although we are now in the realm of "education," it seems obvious that skills and knowledge can be learned. However, a prior requirement is that the information to be learned be explicitly identified, articulated and converted into a form which is then available for dissemination.

There are however, certain important problems. First, the knowledge that successful leaders and executives possess may be based on practical experience and intuition. This type of knowledge is difficult to

identify and articulate. Secondly, it is likely to be difficult to translate this information and skill to individuals who do not have the benefit of experience.

The relatively limited emphasis which many firms appear to place on training their executives for roles in general management leads one to assume that the role of the general manager is a relatively simple one. Andrews states that "little special effort is directed to the education of general managers, and that little opportunity is afforded either in education or in industry to specialize in generality"² An aspiring general manager typically receives his training "on the job." He is expected to either "sink or swim." Others have also noted the importance of the generalist. For example, Sir Eric Ashby, an experienced administrator and also Master of Clare College, Cambridge, has noted:

"...the world needs generalists as specialists. Indeed you have only to read your newspaper to know that the big decisions on which the fate of nations depends are in the hands of generalists. I do not think that Universities, American or British, are satisfied with the education they give the man who is to become a generalist... We can with some confidence prescribe the minutiae of curriculum for doctors, physicists, and lawyers. The unpalatable fact is that we have no confidence in prescribing curricula for men who will become presidents of industries, newspaper editors, senior civil servants, or congressman."³

To return to Andrews:

"Both our failure to establish a tradition of specific preparation for general management responsibilities and our casual selection of candidates for this post on the basis of effective past performance of a specialty (which may require few of the coordinating skills needed for overall leadership) bespeak an historic disrespect for the pretensions of general management to being a specialty of its own."⁴

A major difficulty which has, and which continues to plague the field of general management, is the fact that the theoretical foundations are still to be firmly established. This study seeks to examine and to establish the relevant relationships between strategy, performances, and risk and to make a small contribution towards the establishment of a theoretical body of literature.

In summary, a reason for conducting research is to establish a body knowledge so that, knowledge may become generally available to assist managers to operate more efficiently. Bauer maintains:

"Man has proceeded and succeeded in many enterprises by rule of thumb. The fact that he has done better than chance and often been quite successful has not diminished one general faith that a fuller understanding of the phenomena with which he deals will be of use. On the whole, it has been mankind's experience that we are able to guide our affairs more to our liking as we better understand what we are doing."⁵

Bauer makes a strong argument for basic research. He notes that "rocks were thrown. . . and guns and canons constructed. . . before the science of ballistics was developed." The study of general management is in a

similar position. We believe that there are those who throw rocks particularly well and that their methods need to be studied, evaluated and then communicated if one is interested in having better-thrown rocks.

There are very real and obvious reasons for attempting to study, analyze and develop a formal explanation of corporate performance. These explanations, although based on ex-post data and situations, can be useful in the directing and controlling resources towards concrete ends. This research attempts to identify variables and relations that can be measured and controlled in order to facilitate decisions which will affect future situations in a business context.

To date, relatively few studies have been carried out which seek to explain the growth, risk and performance of the firm. Although a large number of descriptive attempts have been made and which have made significant contributions, considerably more analytical work is required to provide an empirical base for future research and to provide relevant theory and academic rigour in the field of "Business Policy".

Kerlinger maintains that a "workable theory" is an attempt "to explain natural phenomena" and defines a theory as follows:

"A theory is a set of interrelated constructs (concepts), definitions, and propositions that present a systematic view of phenomena by specifying relations among variables, with the purpose of explaining and predicting the phenomena."⁷

In the field of business policy the identification and definition of the concepts that are most useful from a research point of view are very difficult to obtain. This is due primarily to the complexity of the problem to be studied which concerns all the disciplines in business management. Research in the Business Policy area at the present stage of development, requires explanations which are not, nor can be, as definitive as those possible in say, the physical sciences. Rather the research attempts to provide the individual manager and strategist with some control over the complex situation which he faces. The complexity of the decision facing a manager should not be underestimated. Miller and Starr note that "a machine-shop problem, of no apparent complexity, could involve 2.5 quintillion strategies."⁸ In the analysis of marketing decisions they maintain that "the discussions of marketing strategies are so varied that it is inconceivable to include all of them in a formal analysis."⁹ To illustrate the complexity of a very simplified marketing problem they ask the reader to imagine:

"that the decision-making strategy includes 5 possible product designs, 5 prices, 5 patterns of distribution, and 5 methods of communicating with the consumers. This is a total of 625 strategies. If there are 4 competitors, it is not unreasonable to assume that each of the competitors has 625 strategies available. Presuming that there are 5 states of nature, then the number of different conditions that can prevail is 476, 837, 158, 203, 125. Ironically the only ludicrous thing about this number is that it is far too small to describe the actual situation."¹⁰

Miller and Starr also recognise the complexity of the strategist's decision when they state that "the complex decision of allocating an organisation's resources may easily require an astronomical number of strategies to include all feasible alternatives."¹¹

This research will attempt to build on the frameworks established by earlier studies in order to assist in the development of a more definitive and analytical approach to the formulation of corporate strategy and to develop a more powerful explanation of the relationship between managerial decision and corporate performance. Clearly then, from a practical point of view, given the complexity of the situation facing the manager, research in this field should attempt to seek and identify the most significant variables and to measure, if possible, the extent and manner of these relationships.

I.2 Purpose and Scope

This study is concerned with the development of and the strategies adopted by quoted industrial companies in the developing country of South Africa and the financial performance of those companies over a seven year period. The major research objective is to assess the effects of strategic posture on financial performance and the risk associated with posture and performance. The study is the first of its kind to be carried out in what may be termed a developing economy. Much of the research performed in the field of business administration is based in mature economies such as the United Kingdom, the United States of America, France and Germany. Yet the major proportion of world economies can be classified as developing economies. It would seem that too often, important decisions are taken in the less developed business environment, that are based on research and experience in very much more mature business conditions. With their limited resources and often very rapidly expanding populations, these economies cannot afford to make mistakes.

I.3 Comparison Between Developed and Developing Countries

This research topic is believed to be of importance to managers in the developing economy because of important differences between the environmental conditions faced by firms operating in the two economic situations. A corporate strategy which proves very effective in the "developed" economic environment may prove to be a failure in a "developing" or "less developed" economic environment. There are a number of factors which may cause the performance of firms operating in the two environments to differ substantially.¹² For example:

- differences in the costs of the factors of production
- differences in the scale of operation and
- differences in the characteristics of certain inputs.

There are a number of important differences between developed and less developed countries. Certain of these characteristics are outlined in Table 1-1 below.

Certain important features are worthy of discussion.

For example:

1.3.1 less developed countries have an abundance of unskilled labor, and

1.3.2 experience a shortage of capital.¹³

1.3.1 Abundance of Unskilled Labour

By examining Table 1-1 it is clear that the developing nations have "excess" labour. Whereas the population of developed countries is 1.1 billion people, the GNP is \$4991 billion compared with 2.8 billion people and \$632

TABLE 1-1

Profile of the Developed & Developing Nations
(Data for 1974; values in 1974 U.S. Dollars)

	<u>Developed Nations</u>	<u>Developing Nations**</u>	<u>World</u>
<u>DEMOGRAPHIC</u>			
Population (in billions)	1,1	2,8	4,0
Percentage of total world population	27,5	70,0	100,0
Birth rate (per thousand)	17	37	31
Death rate (per thousand)	9	14	13
<u>ECONOMIC</u>			
GNP (gross national product - \$ billion)	4,991	632	5,788
Percentage of total world GNP	86,2	10,9	100,0
GNP growth rate (1970-1974)	3,6	5,5	4,5
Per capita income (1974 \$)	4,537	226	1,447
Investment (\$ billion)	1,098	114	1,243
Per capita investment (\$)	100	4	31
Investment as a % of GNP	22,0	18,0	21,5
Exports (\$ billion)	808	134	1,043
Percentage of total world exports	77,5	12,8	100,0
<u>SOCIAL</u>			
Literate population (in millions)	758	746	1,522
Malnourished population (in millions)	10	900	910
Poorest population in millions below \$100 per capita	nil	942	942
Percentage of population	nil	33,6	23,6

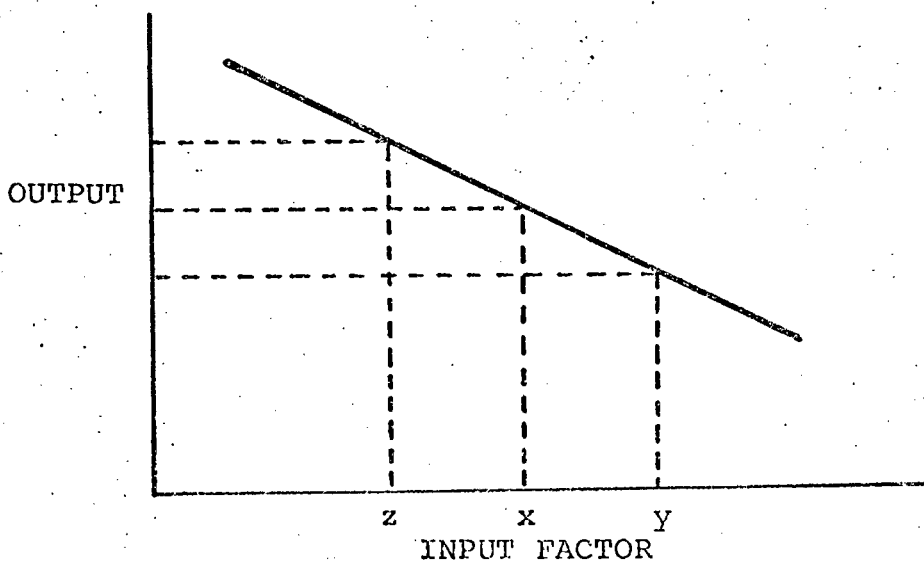
** includes countries of the Third World, but
excludes OPEC members (except Indonesia and
Nigeria)

billion respectively for the less developed nations. The less developed countries have a massive unemployment problem. The degree of unemployment is difficult to gauge accurately due to the narrow definitions of unemployment used by these governments. The International Labour Organization unemployment statistics are therefore likely to be seriously understated. Certainly the South African figures are incorrect.

Apart from measurement problems, the developing countries are believed to contain a large proportion of what is termed "underemployment" or "disguised" employment. These terms refer to a situation where the removal of units of labour (or other factors of production), would not, *ceteris paribus*, reduce the total amount of production - or may even increase production.¹⁴ This condition would exist where the input of the factors of production are at a point Y or Z in Figure 1-1 and if reduced to X, production may increase, or not diminish.

Figure 1-1

Illustration of the Disguised Employment



The agricultural and public service sectors are generally believed to contain a large proportion of disguised unemployment. Certainly the South African situation is in agreement with this reasoning and large amounts of unskilled labour exist.

Whilst unskilled labour is abundant in the developing economy, it is also generally true that a scarcity of skilled labour and managerial expertise exists. South African data is difficult to obtain, but newspaper comment in this regard and the tendency of local firms to recruit managerial and technical staff from foreign countries is evidence of the local shortage of these skills.

1.3.2. Capital Scarcity

Availability of capital in developing economies is difficult to assess but a brief synopsis of the data in Table 1-1 above, will serve to illustrate the relative scarcity of capital. Investment as a percentage of Gross National Product is 22 percent for developed countries while the value for the developing nations is 18 percent. This is not a serious discrepancy as the values are roughly the same. When the investment value of \$1098 billion for developed nations is compared to that of the developing nation's investment of \$114 billion the difference is significant. As a percentage, the investment in developing nations is only 10.3 percent of that of the developed nations. The disparity is even more evident

when the population factor is introduced as investment per capita of developing nations is only 4 percent of that of the developed nations.

The developing nations also experience a faster population growth and require considerable amounts of capital to generate employment for their growing populations, apart from the capital requirements necessary to reduce existing unemployment.

1.4 Strategic Choice in the Developing Countries

Given the brief description of two of the major problems facing developing nations discussed above, it becomes imperative for firms in the developing countries to avoid wasting capital through inappropriate corporate decision making. It is at the corporate level that a large proportion of capital is invested. These resource allocation decisions form part of, shape and flow from the corporate strategies of each of the firms.

Discussions with executives and colleagues has revealed that an extremely simplistic view of the situation facing developing countries is taken by certain individuals. This view is that firms in developed countries have the benefit of hindsight in that they can simply examine the experiences of firms in developed economies and apply the same successful strategies in their local situation. Their answer assumes that the developing economy will follow the patterns experienced by the developed economy in arriving at that stage of development. Yet the corporate graveyards are full of firms that have attempted to transplant what was found to be say, a successful marketing strategy in the United States, into the supposedly identical South African marketing environment. A number of factors, some of which are discussed below, contribute towards producing a business environment in the present developing economy, which is very different to the conditions experienced by

firms in the present developed economy when those economies were in the "developing stage".

1.4.1 Sources of Technology and Capital Goods

During the period when the developed economies were "developing", technological change was in response to an evolving market and was limited by the state of the art from a technological point of view. The changes that were necessary and that were made were "internally generated". The developing economies in today's world must import their capital goods. Thus the source to the developing economy is "externally generated" and is dependent to a large measure on the design requirements of the exporting, developed country.

The imports of machinery and equipment by developing countries is significant. In 1974, imports of these items by developing countries represented 36 percent of total imports. The export of these items in the same year was a mere 1.9 percent.¹⁵

The design requirements of this equipment, as stated above, are determined in the mature economy since many of the larger firms in the developing economies are subsidiaries of firms already established in the developed economies. The equipment thus imported will, in most cases, be particularly suited to the production of products demanded by a relatively sophisticated markets in which the parent firm resides. A

further problem from a developing economy's point of view, is that equipment is likely to be designed for large scale production and will be less labour intensive, thereby aggravating an already chronic unemployment problem.

From a strategic point of view, overcapacity, due to the large scale production for which a plant may be designed, and the product which is produced, when added to a technical and managerial manpower shortage in a market with limited purchasing power, may prove to be fatal. These problems were less critical to the firm which was located in an evolving market where the technology and scale of production was more suited to the needs of its developing market.

An obvious question thus arises - Why do the developing countries not adopt and employ technologies and designs that were utilized by the present developed countries when they were at a comparable stage of development? The answer is threefold.

Firstly, the developing countries are in direct competition with the developed countries in almost all product areas. The developed countries are employing modern technologies which require less labour to produce and are often more efficient, thereby requiring less capital per unit of output.

Secondly, the markets in which the presently developed and developing countries compete, are likely to be more quality conscious than these markets were during their

development stage. Steel made in modern furnaces has less imperfections than steel made in furnaces designed a century ago. Woodpulp bleached using the modern multi-step process produces a superior paper than that bleached using the older chlorine process. Certainly, this is true for many products. The developing country, when producing products for export to the developed countries, must conform to design and quality standards to which these markets are accustomed. Indeed, this problem also exists for products produced for the local market. Prior to local manufacture, most products are imported from the developed economies. Ganitsky has studied the critical success factors for firms as the business system develops and his research emphasises the importance of imported products and the problems associated with production during what he has termed Stage I of the development process of business systems.¹⁶ Ganitsky studied the development of a number of industries and classified them into two broad groups, nondurable and durable goods. His study was performed in a developing economy and his estimates of the transition stages for various products under each classification are between the years 1939 - 1949.¹⁷ The stage when local manufacture seemed to occur is Stage II and his estimate of the transition for both durable and non-durable products from Stage I to Stage II is between 1930 and 1949 - that is, the 1930's and the 1940's. For 75 percent of the product groups

studied, this period is stated to be the transition from import to local manufacture. It seems obvious that for most products, any firm producing these products with technology developed between 1930 and 1949, would be at a serious disadvantage.

The decision as to whether or not a developing economy should concentrate on capital-intensive or labour-intensive technologies is also subject to debate. The studies conflict with one another and can be divided in two broad groups - the one group favouring labour-intensive investment strategies and the other capital-intensive strategy.

The first group maintain that the choice should be based on the real prices to the economy (or social prices) of the various factors of production which, when taking the demand and supply situation of these factors into account, differs considerably from the demand and supply situation faced by the developed economy. The low capital investment necessary would free capital for other low capital projects and thereby serve to employ additional labour. Writers in this group include Singer,¹⁸ Mason,¹⁹ Higgins,²⁰ Polak,²¹ and Lewis.²²

The "capital-intensive" group advocates this strategic approach as they believe it will generate the largest reinvestable source of capital and ease the problem of scarcity of capital availability. This theory is based on the assumption that the owners of capital have a higher

propensity to save than do wage earners. This approach also maintains that skilled labour and managerial skills are likely to be scarce and that a capital-intensive industrial structure will ease the effects of the shortage of these factors of production by reducing the size of the managerial and labor forces. Proponents of this strategy include Dobb,²⁵ Hirschman,²⁴ Leontief²⁵ and Sen.²⁶

The research into the performance of developing countries suggests that these countries are experiencing lower and lower returns for each additional unit of investment.

Bruton's research into Latin-American countries has shown that, while the rate of investment was high, the ability of this investment to absorb labour was not improved over time but remained constant or declined.²⁷ Sakong analyzed developed and developing economies for the period 1950-1953 and 1961-1963.²⁸ He found that the amount of capital to produce an additional unit of output has grown at a rate of 20 percent per year in developing countries. The comparable figure for developed countries was -0.29 percent per year. In addition he finds that the growth rate of value added in manufacturing was 10.9 percent and 6.4 percent for developed and developing countries respectively.

Mason, in his study of the Philippines, also a developing country, found that while the total book value of fixed assets grew at a rate of 15.7 percent per year for

period 1960-1965, employment increased at a rate of 5.6 percent per year over the same period.²⁹

These studies suggest that capital intensity is increasing rapidly in the developing economies and fewer and fewer jobs are being produced for each additional unit of capital invested.

1.4.2 Summary

The preceeding section has attempted to sketch the major differences between the developed and developing countries in terms of the problems faced by these countries. The fact that the developing countries are at a major disadvantage when competing with the developed countries is clear and the solutions to the problems are not as simple as many would believe. The developing countries must support 70 percent of the world's population and if world population growth estimates are realized, this figure will have doubled from the present 2.8 billion people to around 5.6 billion by the turn of the century. The research has indicated that capital investment in developing countries is facing declining returns if measured in terms of labour employment. Business firms are very important channels of investment and given the scarcity of capital in South Africa in particular, the available capital should be invested optimally to avoid any misallocation of this critical resource. As will be discussed

below, the manner and direction in which a firm allocates its "discretionary capital" can be described as that firm's strategy.

I.5 South Africa - A Developing Economy

There seems to be little argument that South Africa is not a "developed economy." The International Monetary Fund categorises South Africa as a "more developed, primary producing country."³⁰ Thus South Africa is grouped with such countries as Australia, New Zealand, Finland, Greece, Iceland, Ireland, Malta, Portugal, Rumania, Spain, Turkey and Yugoslavia. All these countries are "dependent on crude or semi-processed materials or foodstuffs for their export earnings."³¹

Knight also views South Africa as less developed when he states that:

"Although the industrial structure of South Africa approaches that of industrialized countries - manufacturing is the largest sector and its output now exceeds agriculture and mining combined - there are many great differences in labour productivity between sectors, and the most important sources of African employment are low productivity services, wage employment on white farms and self-employment in peasant agriculture."³²

Business firms in South Africa can least afford to make costly errors which result in poor financial performance or failure. South Africa's population of twenty five million is the fourth largest in Africa, is nearly half that of Britain and France and nearly double that of Australia.³³ The population comprises four main groups, all with differing growth rates. Table I-6 contains figures for the 1970 census and estimates of population composition by population group for 1980 and 2000 while Table I-7 contains growth rates by group.³⁴

Table I-2
South African Population by Group
 (Figures in Millions)

<u>Population Group</u>	<u>Census</u>		
	<u>1970</u>	<u>1980</u>	<u>2000</u>
Blacks	15,34	20,64	37,29
Whites	3,77	4,76	6,89
Coloureds	2,05	2,82	4,89
Asians	0,63	0,83	1,22
Total:	21,79	29,05	50,29

Source: J. L. Sadie, Projections of the South African Population 1970-2020, Industrial Development Corporation. 1973, quoted by: M. Dagut, South Africa: An Appraisal, Nedbank Economic Unit. Johannesburg, 1977, Page 27.

Table I-6 suggests that Blacks will increase as a proportion of the total South African population from 70 percent in 1970 to 74 percent in 2000, while the comparable figures for whites are 17 percent and 14 percent respectively. This disparity is due to the differing growth rates in the different population groups. Estimates of the growth rates of the different population groups are presented in Table I-7 below.

Table I-13
Projected Growth Rates of South African
Population Groups, 1975 - 2000
 (percentage increases per annum)

Population Group	1975	1980	1985	1990	2000
Blacks	2.87	2.97	3.04	3.06	2.90
Whites (including immigration)	2.26	2.19	2.06	1.91	1.69
Coloureds	2.99	2.99	2.97	2.85	2.61
Asians	2.43	2.36	2.22	2.01	1.73

Source: J.L. Sadie, Projections of the South African Population 1970 - 2020 Industrial Development Corporation. 1973, quoted by M. Dagut, South Africa: An Appraisal, Nedbank Economic Unit. Johannesburg, 1977, page 27.

This large rapidly growing population will have to be employed if major social problems are to be avoided. With the relatively limited resources available in South Africa it is imperative to avoid a misallocation of resources.

If such wastage is to be avoided, a wider body of research which is directly related to the developing economy is required. This study is thus concerned with the selection of the optimal strategy for corporate development within such an environment. The study focusses on two major areas of strategic choice.

I.5.1 Financial Strategy

Business firms in South Africa face particular problems at this critical stage of development. Almost all firms require access to capital markets to fund their growth. The capital markets in their turn require adequate performance in order to attract capital. Dickman has expressed the view that South African industrial firms may not be "sufficiently profitable" to attract equity capital to finance expansion.³⁵ The Johannesburg Stock Exchange has been a poor source of capital since the boom period of the late sixties and the high rates of inflation have served to reduce the attractiveness of stock market as an investment.

Another major source of capital for expansion are internally generated funds, namely depreciation and retained earnings. However these sources are unlikely to provide sufficient funds as inflation tends to make depreciation allowances inadequate and thus effectively raises taxation rates. Inflation also reduces the funds available for real expansion by causing investment in assets to increase. Inflationary conditions also tend to raise costs and profit margins are squeezed further reducing retained earnings.³⁶ The other major source of capital is that of debt financing. However, increased debt raises financial risk and thus shareholders typically require an increase in return to compensate for the increased risk.

It would thus seem to be important to assess the effects of financial strategy to determine whether firms which have adopted similar corporate strategies in terms of product-market diversity (which are discussed in detail below), differ in respect of their debt usage profitability and perhaps more importantly, in terms of their growth rates.

I.5.2 Product-Market and Diversification Strategy

The data provided by the Balance Sheet and Profit and Loss Statements are a measure of the results of decisions taken in the product - market interface. Foster maintains that product strategy is defined for the individual firm by answering the question:

"What range of products should we offer to our customers to achieve the target levels of profit, growth and market position we have set for ourselves, in relation to the total market?"³⁷

The ability of the firm to satisfy market needs through the provision of products will determine the growth and financial performance of the firm. In certain cases, the firm may decide that other field provides more attractive opportunities and will diversify its activities. The interesting question from an academic point is - Why have companies adopted different patterns of diversification and development? Rumelt states that:

"When an industrial corporation decides to diversify its product line, it is making a strategic decision whose consequences may alter the fundamental nature of the firm and may involve as well, a substantial redeployment of resources and a redirection of human energy. Diversification, however, is neither a goal nor a plan; each firm that diversifies must choose the types of business it will enter, the degree to which it will build on past strengths and competences or require the development of new ones, and the total amount of diversity that is appropriate. There is no single strategy of diversification.³⁸

Indeed, many firms chose not to diversify their operations and this too is a strategic decision. This research is thus an attempt to assess the efficiency of these strategies of diversification in terms of financial performance and risk in the context of a developing economy.

I.6 Background to the Research Problem

During the two decades, 1950 to 1970, business firms were faced with problems and conditions which could not be overcome with existing management techniques. The prime cause of these difficulties was that these firms were finding it increasingly difficult to adapt to a rapidly changing environment.

The firm can be seen a system of parts, all of which must be integrated if the firm is to achieve its objective. Some writer's believe that this objective is primarily survival.³⁹ The firm receives from the environment and provides a product or service in return and strives to achieve its objectives by the most efficient deployment and allocation of the resources at its disposal.

Chamberlain describes this process as follows:

"Just as the firm explores its environment to discover what opportunities are offered and how it can best exploit them, so does the environment - the social environment - react to the firm in turn. The firm offers society a resource to be exploited for the achievement of the latter's own objectives. To that end it may prod the firm to move along certain lines rather than others, offering inducements. It may close off certain opportunities on which the firm had seized if the exploitation of these seems to disadvantage society rather than reward it. It may impose certain restraints on the ways in which a firm is free to act in the pursuit of its objectives.⁴⁰

Clearly then, the firm is monitored very closely by what Chamberlain calls "society" - but this society is made up of many different components. These components are the

legal, political, social and cultural sub-environments. The most important element is probably that of competition. Competitors, either existing or potential, are continually assessing a firm's performance, and if that performance is seen to be inadequate in any way - new and aggressive entrants will appear and only the most effective and efficient firms will survive. The problems at present experienced by firms, has resulted from a failure to provide the products required by the market or gross inefficiency. The failure to provide the products needed may be a result of product life cycle effects when demand cannot be restimulated by promotion and where the product is being replaced by superior substitutes provided by new entrants. A number of important factors have enabled firms to enter new markets and to compete with entrenched competitors. Two important contributory factors have been technological development and consumers market development.

1.6.1 The Impact of Technological Advance

Expenditure on research and development has increased tremendously since the Second World War. Table 1-8 lists total expenditures on research and development and scientists and engineers employed in the United States between 1941 and 1963 and provides an indication of the rapid increase in research effort. Total research and development expenditure rose 1828 percent during the period. These statistics reveal an annual compounded growth rate of 14.4 percent per

annum for scientists and engineers. The figures suggest a doubling of research expenditure every five years. These statistics are for total research and development expenditure but industrial research and development expenditure has increased at an even faster pace. Ansoff maintains that industrial research dollar expenditures grew from \$1.2 billion to \$10 billion over the period 1946 to 1961.⁴¹ Ansoff compares the relative growth of research and development expenditure with the investment in plant and equipment which rose by 833 percent and 135 percent respectively.

Table 1-4

Research and Development Expenditures in Total and Number of Research Scientists and Engineers, U.S.A., 1941 - 1963

Year	Total R&D Expenditure (\$ millions)	No. of Research Scientists and Engineers (000's)
1941	900	87
1943	1210	97
1945	1520	119
1947	2260	125
1949	2610	144
1951	3360	158
1953	5160	223 ^(b)
1955	6200	n.a.
1957	9810	327 ^(c)
1959	12430	n.a.
1961	14380	387
1963	17350 ^(a)	n.a.

(a) Preliminary, (b) 1954 figure, (c) 1958 figure n.a.: not available
Source: The Growth of Scientific R&D, Department of Defense, 1953 Pages 10 and 12; National Science Review of Data on R&D, No. 33, April, 1962; National Science Review of Data on Science Resources, Vol. 1, No. 4, May 1965, quoted by E. Mansfield, Industrial Research and Technological Innovation, Longmans, Green and Co., Ltd. London, 1968, page 7.

Ansoff states that by 1962 the total United States expenditure for research and development was roughly 40 percent of that for plant and equipment.⁴²

Many of the giant companies of the World have attributed their success and growth to their emphasis on research and development. Luck states that:

"Eli Lilly (the pharmaceutical firm), during the past decade has spent around 10 percent of its revenue on research and development. During that period its sales have risen threefold, while profits have risen fivefold. Observers attribute these gains largely to the flow of new products from its laboratories."⁴³

Proctor and Gamble, another extremely successful packaged goods company "spends well over \$100 million a year on research" and "has been growing at an average rate of 8 percent a year, compounded - one of the most splendid long run performances in the annals of Business".⁴⁴

Vanderwicken continues:

"Proctor and Gamble took 119 years to reach its first billion dollars in sales, nine years for its second, five years for its third, three years for its fourth, and a little more than a year for its fifth. At the recent rate of growth, sales could more than double by 1980. If history is a guide, profits would keep pace."⁴⁵

South African businessmen often fail to appreciate the scale of these levels of expenditure. An example will serve to place these levels of research expenditure in context. In 1975, South African Breweries Limited, the largest industrial company in South Africa, announced that its sales turnover for 1975 was R888 million.⁴⁶ During

1975, International Business Machines Corporation, spent \$946 million on research and development alone!⁴⁷

The emphasis that many companies place on research and development suggests that a company can expect to obtain a "pay off" from investment in research and development. It is however, extremely difficult to measure such a return. Research by Keezer et al. suggests that expected returns from research and development were "significantly better than the typical returns or payoff, on investment in new plant and equipment. . . (this explains) why many companies with a given amount of capital to reinvest found it profitable to increase the proportion going to research and development."⁴⁸

1.6.2 Consumer Market Development

A second major influence on economic development since the 1940's has been the apparent willingness of consumers to adopt new products. This willingness has resulted in a flow of new products and vast new markets have been opened up. Robertson maintains that the consumer appears to have undergone a social and psychological shift in that he or she seems to expect and require change and is "receptive to progress and 'newness'."⁴⁹ This receptivity has resulted in a shortening of the product life cycle for many products.⁵⁰ A.C. Neilson, the market research firm, has carried out a study investigating trends in the length of product life cycles. The study concludes that 85 percent

of all new brands can expect less than three years of success before their market shares start declining rapidly.⁵¹

Ansoff supports this view and maintains that there

"has been a continuous shortening of the profitable life-span of products. While Du Pont's nylon, invented in the 1930's had no competition for many years, the head start of equally dramatic Delrin was overcome by competition in a matter of two or three years."⁵²

The environmental factors of rapid technological and market/need changes poses both a threat and a problem to management. Ansoff states that:

"Triggered by accumulated technology and pent-up consumer demand, product innovation has become an increasingly important tool of competition and growth. To the business manager it has brought both opportunities and problems. On the one hand, application of new technologies to new uses has opened up many new markets; on the other invasion of established product lines by new and improved products has produced technological obsolescence and forced companies to devote major attention to defensive research and development."⁵³

Schon has also pointed to the threat of a firm in a different industry "invading" a market and rendering the existing product obsolete.⁵⁴ The invasions of the wrist-watch market by the electronics industry and the textile market by the chemical industry through the development of nylon are good examples of this threat.

The increased competition in the market place will mean that many firms will be forced into other areas or will have to defend their existing markets more vigorously. These critical strategic decisions will become the vital ingredients of success or survival.

1.7 The Trend Towards Diversity

There would appear to be a trend towards increased specialization in the business world. Modern life appears to be so complicated that the individual can only master a small portion of a task. Galbraith believes that technology and the increasing specialisation of technological effort "forces specialisation and yet results from specialisation."⁵⁵ He believes that the firm, due to the specialisation in technology, will grow to take advantage of economies of scale. The firm in an effort to reduce uncertainty resorts to planning in order to control and manipulate the market. He states;

"So the firm controls the prices at which it buys materials, components and talent and takes steps to ensure the necessary supply at these prices. And it controls the prices at which it sells and takes steps to insure that the public, other producers or the state take the planned quantities at these prices. So far from being controlled by the market, the firm, to the best of its ability, has made the market subordinate to the goals of its planning."⁵⁶

Certain writers in the field of corporate development have disagreed with Galbraith's theory of increased specialization. Scott maintains that Galbraith "has not burdened his readers with supporting evidence."⁵⁷ In particular, Scott believes that Galbraith offers no systematic evidence on the evolution of the large company. Instead he offers an economic argument buttressed by "anecdotes". Scott maintains that Galbraith's "new industrial state" is actually the "old industrial state."⁵⁸

The behaviour of firms seems to support Scott's thesis. Firms appear to be diversifying rather than specializing. As Lynch has noted:

"The multifirm horizontal consolidation dominated the industrial scene at the turn of the century; large-scale vertical integration, particularly in the basic metals industries occurred during the same period and again in the 1920's; ...The phenomenon of the 1950's and 1960's has been the 'acquisitive conglomerate', the corporation growing through a continuing program of aggressive, diversified acquisition. In 1969 it was still a growing phenomenon, comprising a substantial group of firms".⁵⁹

There are a number of reasons or explanations as to why this trend from specialization should exist and include such factors as:

- 1.7.1. The desire for increased stability by corporate management by investing in counter-cyclical business areas;
- 1.7.2. The drive to satisfy and improve on growth and profit objectives requires management to enter growth industries.⁶⁰

Whatever the reasons for this tendency toward corporate diversification there appears to be little doubt as to its existence. The trend to increased diversity has led certain writers to question the "survival capacity" of these firms. Attiyeh maintains that the corporate environment will slow conglomerate growth rates due to external

constraints such as anti-monopoly legislation and industry resistance on the one hand and their increasing size on the other.⁶¹ Judelson believes that the conglomerate is the corporate form of tomorrow.⁶² Carroll identifies the challenges facing conglomerates but believes that their unique problems can be overcome.⁶³

The study of corporate growth and success suggests that these large, diversified firms have solved the problems of managing an enterprise with operations in diverse and often unrelated fields. The intriguing aspect that is revealed by such a study is the fact that many of these successful firms have used different strategies and degrees of diversity to achieve their apparent success. Some firms have adopted strategies to become the largest firm in a particular industry, others have attempted to spread their "risks" by diversifying, while others have remained small but have been able to produce records of exceptional performance.

This difference in approach to a common problem which can be defined as a difference in the strategy employed to achieve objectives and has given rise to a number of related research investigations in different countries.⁶⁴ These investigations have all sought to examine the manner in which firms solve the problems posed by a rapidly changing environment, shareholder, employee and societal pressures. Not only are these pressures increasing but the rate of change appears to be accelerating.

The management of these problems place management into a situation of paradox. They must strive for growth on the one hand, while on the other, the operations of the firm must be stabilized to control and measure performance. The drive for growth requires that the existing order be broken down and rebuilt in order to generate increased efficiency or to enable expansion to take place - but the need for stability demands that the system be maintained and not be changed in order to facilitate the measurement of performance. Chamberlain states:

"There must always be a tendency toward systematic, coherent organisation if the firm's existing goals are to be achieved and if the complex of relationships is to be held together at the present point in time. There must always be a tendency toward a state of equilibrium. At the same time there must also be a tendency toward a breakup of existing relationships and the formation of new ones, because of the intrusion of unavoidable environmental changes and the firm's purposiveness toward them. There must be a tendency toward disturbing present relations, toward introducing an element of disequilibrium".⁶⁵

The continual movement towards change is not confined to size, markets and operations but also to organisational structure. The first study of note which analysed the patterns and manner in which firms developed was performed by Chandler.⁶⁶ The development of firms was studied over the period 1909 to 1959 and the findings showed that the widening of product-market-scope and diversification had resulted in the need for a new management and administration system that would be able to manage diverse market

operations. The administrative system known today as the multi-divisional structure was developed as a result of these more demanding organisational requirements.

Rumelt has noted that this new organisational structure:

"...has served to institutionalize diversification. It has permitted the insulation of a set of business managers from the vicissitudes of the capital markets, and has created a type of managerial environment that encourages rapid deployment of resources and places a premium on economic performance and the skills of the generalist."⁶⁷

The trend toward divisionalization also resulted in a need for a new "breed" of manager - the generalist. The generalist must be able to integrate the functional and operational skills below him. The increasing complexity of modern business operations serves to make the task of the general manager an extremely difficult one. Bower states that "so many basic technologies are in use in the company, that no one manager is likely to have the competence to evaluate critically and in depth the technological component of more than one or two business groupings."⁶⁸

As a result of these complexities, strategic decisions are often forced lower down the management hierarchy and must be made by divisional management who are expected to have a better knowledge of environmental conditions that could be expected and how best to exploit opportunities that may arise. The problems are not overcome by forcing decisions on divisional management who are not easily

integrated into a single unit and a conflict of interests between the corporate head office and divisional management can develop. As Berg states:

"For the purpose of corporate long range planning, a large multi-unit company cannot be usefully regarded as a single economic unit with a single set of interests. The principal difference is that...each of the subunits of a large multi-unit company will have some interests which are either incidental to or in conflict with the interests of the corporate as a whole."⁶⁹

Thus the diversified and/or divisionalized firm differs not only in organisational structure and product/market operations from what Rumelt calls the "more primitive type of enterprise" but in the kinds of problems that it faces."⁷⁰

1.8. Summary

It can thus be seen that the modern firm faces problems that are related to:

1.8.1. The environment in which it must operate;

1.8.2. The tendency towards increasing size and diversity;
and

1.8.3. The problems of controlling these operations while trying to provide a structure which facilitates change and growth.

The manager in the developing economy, when setting strategy for his firm, seeks answers to such questions as:

Are single product/non-diversified firms better "performers" than multi-product/diversified firms?

Are diversified firms, due to their ability to spread their risk over different markets, more or less "risky" than single product firms who are committed to only one market?

The major thrust of this research is to attempt to provide answers to these and other questions, and to assess the effect of corporate strategy, as defined by financial policy and diversification, on financial performance and risk. The research is based in the context of a developing economy with not yet fully developed capital markets, rapid population growth, a large and unskilled labour force and a shortage of managerial skills. The growth and development of firms in this environment is seen to be an area of considerable interest to academics and businessmen who deal

with developing economies.

Answers to these questions are seen to be important, especially in the South African context as the economy is in a developmental stage and more and more firms appear to be facing the problems of selecting strategic direction as the economy matures.

Chapter Outline

The conceptual framework of the theory of Business Policy is prescribed in Chapter 2. This Chapter reviews the basic approach to formulation of corporate strategy and attempts to sketch the basic objectives of business firms which highlights the growth emphasis evident in corporate behaviour. In addition, the theory of the growth of the business firm is presented.

Chapter 3 provides greater depth of discussion in the area of corporate diversification and a brief history of diversification in the major economies, the reasons for diversification and entry behaviour are reviewed. The existing literature concerning internal and external routes to diversification are discussed in depth.

The important fields of Portfolios and Capital Asset Pricing Model Theory are introduced in Chapter 4. The models and the underlying assumptions are examined since these models provide important risk measurement techniques which are utilized later in the study.

/The methodology used ...

The methodology employed, the variables analysed and the research hypotheses are described in Chapter 5 while Chapter 6 presents the findings. Chapter 7 integrates the major concepts and synthesizes the findings. The implications for management and educationalists and possible future research directions are also discussed. Finally, the major findings are reviewed and summarised.

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2. THE THEORY OF CORPORATE STRATEGY AND DEVELOPMENT

2.1 Introduction

The past fifty years have produced tremendous changes in the life of the average man. The industrial revolution has continued to influence the quality of life. This economic development has affected the social, cultural, political and legal structures in almost every country and continent. The effects seem to have been most radical amongst the developed countries when the pace of development and change has been the most rapid. The key to this development has been the establishment of the business organization or firm.

Since the industrial revolution, society has seen the growth of a new form of social institution - that of the large-scale business enterprise. This industrial corporation has itself evolved further and new forms of industrial combination and organization have been developed. These developments have seen their most rapid growth since the late 1800's, starting with the consolidation period and ending with the sprawling conglomerate/multinational firm.¹

Dyas believes that the development of the business organization is a major cause or agent of the development achieved during the twentieth century.

He states that:

"While appearing less dramatic than the advent of the motor car, the airplane, the radio or the computer, the growth of the large scale

economic organisations nonetheless represents one of the radical new departures of recent human history. Indeed it could even be argued that the changing nature of economic institutions over the last century renders most of the concurrent changes in governmental, military, legal and religious institutions almost insignificant by comparison. The modern industrial enterprise is a very new phenomenon when looked at with historical perspective. Employing thousands of people in co-operative effort, requiring complex administrative structures for their management, the large scale industrial enterprise, both private and government-owned, play a key role in economic life today. The development of this new institution could be described as the second major aspect of the economic revolution of the last century and a half."²

The firm enabled resources to be concentrated under some form of central control, production was rationalised into technological systems called "factories" and diverse skills were integrated. In the early part of this century these firms were very small by today's standards. Drucker quotes the following example:

"The octopus which so frightened the grandparents of today's Americans, Rockefeller's giant Standard Oil Trust, was split into fourteen parts by the U.S. Supreme Court in 1911. Thirty years later, ...every single one of these fourteen Standard Oil daughters had become at least four times as large as the octopus when the Supreme Court divided it."³

Society has also become increasingly dependant on the modern institution - of which the firm is the leading example. This is not difficult to understand when the concentrations of wealth and power vested in the modern day

business firm is taken into account. For example according to the "Fortune '500'" of 1974,⁴ three companies, namely Exxon with sales of \$44.8 billion, General Motors, with sales of 35.7 billion, and Royal Dutch/Shell with sales of \$32.1 billion in 1975, are larger than South Africa if compared with the South African gross national product of R24.6 billion in 1975.⁵ When the size of many multinational companies is taken into account, the decisions of these companies may have more impact on trade than the decisions of governments.⁶

The power that large firms appear to control has resulted in many commentators paying considerable attention to the power and size of these firms. Many of these writers have expressed fears as to the concentration of such power in the hands of relatively few companies. The apparent trend towards concentration of corporate power has led certain writers to forecast that large firms would continue to increase in size and power.

Berle and Means in a 1932 study, estimated that two hundred firms would control 70 percent of all corporate activity in the U.S.A. by 1950.⁷ Chairman of the United States of America Anti-Trust and Monopoly Sub-Committee of the Senate Judiciary Committee, Senator Philip A. Hart, has estimated that less than 200 corporations will control 75 percent of the U.S. nation's manufacturing assets by 1976.⁸ Nicholas Salgo, the colourful entrepreneur who

started Bangor Punta has stated that by 1979 there would be only 200 major industrial firms in the United States. He predicted that all of these companies would be conglomerates.⁹

Markham cites the attitude of the Federal Trade Commission in the United States when he quotes the commissions' 1960 report on the Conglomerate Movement as follows:

"In unprecedented fashion the merger movement is centralizing and consolidating corporate control and decision-making among a relatively few vast companies."¹⁰

Markham also states that:

"In the late 1960's, at the peak of the conglomerate boom, it did not appear inconceivable that the whole of American industry might someday become a single all-encompassing conglomerate, USA Inc."¹¹

It seems clear that the largest proportion of modern industrial activity is produced by larger firms. Stacey, in a study of 2027 companies, examined by the British Board of Trade in 1963, found that as much as 57 percent of the total net assets of the companies examined, were accounted for by the 100 largest firms in the sample.¹² This means that 4.9 percent of firms accounted for 57 percent of total net assets in this sample. Galbraith has also commented on this phenomenon:

"Nothing so characterizes the industrial system as the scale of the modern corporate enterprise. In 1962 the five largest industrial corporations in the United States,

with combined assets in excess of \$36 billion, possessed over 12 percent of all assets used in manufacturing. The fifty largest corporations with assets in excess of \$10 million, some 2000 in all, accounted for about 80 percent of all the resources used in manufacturing in the United States."¹³

In another study, Wrigley shows that in 1968, although the 500 largest United States firms account for only 0.25 of the total number of firms, these 500 firms accounted for some 66 percent of industrial output and employees, and 75 percent of industrial products in the United States economy.¹⁴ The actual figures are provided in Table 1-1 below.

Table 2-1

Relative Importance of 500 Largest
United States Corporations in 1968

	All firms (millions)	Top 500 (millions)	All firms (percent)	Top 500 (percent)
Output	633 000	405 000	100	64
Profits	32 000	24 000	100	74.4
Employees	19.8	14.0	100	69

Source: Wrigley, Leonard, "Divisional Autonomy and Diversification," Unpublished Doctoral Dissertation, Graduate School of Business Administration, Harvard University, Boston, 1970, Chapter 2, Page 19.

Galbraith has been so impressed by what he believes to be the importance of large business organisations that he appears to regard the smaller business as a relic of the past.

"In the past, leadership in business organization was identified with the entrepreneurs - the individual who united ownership or control of capital with capacity for organising the other factors of production and, in most contexts, with a further capacity for innovation. With the rise of the modern corporation, the emergences of the organisation required by modern technology and planning and the divorce of the owner of the capital from control of the enterprise, the entrepreneur no longer exists as an individual person in the mature industrial enterprise."¹⁵

Sheehan has however, provided some evidence to show that the situation is not as nearly as serious, from a corporate control point of view, as Galbraith has suggested. In an examination of the "Fortune 500," the largest industrial corporations in the United States, he concluded that family control and ownership was still significant.

"In approximately 150 companies on the current Fortune 500 list, controlling ownership rests in the hands of an individual or the members of a single family. Significantly, these owners are not just the remnants of the Nineteenth Century dynasties that once ruled American business. Many of them are relatively fresh faces. In any event, the evidence that 30 percent of the 500 largest industrials are clearly controlled by identifiable individuals or by family groups, is something to ponder. It suggests that the demise of the traditional American proprietor has been slightly exaggerated and that the much advertised triumph of the organization is far from total."¹⁶

In the South African context, although no research into this issue could be identified, the *prima facie*

evidence would appear to support the Sheehan findings. The importance of men such as Barlow, Rupert, Luyt, Ackerman, Oppenheimer, McCarthy, Gordon, Frame, Shill and Hersov in their firms cannot be denied.

Burch has also challenged the concept of divorced control and management of United States firms. In an exhaustive study he has found a close relationship between control and ownership. He states that:

"...Contrary to what many might think, the rather pervasive family control exercised over a substantial number of the total 450 industrial, merchandising, transportation, and commercial banking concerns included in this analysis is, for the most part, of a very direct and enduring nature. That is to say, not only is this control exercised through significant stock ownership and outside representation on the Board of Directors, but also, in a great many cases, through a considerable amount of family managerial direction of these major corporate enterprises. As a rule, moreover, a very sizeable percentage of these families have wielded this formidable economic power over a fairly long period of time."¹⁷

The belief that large firms will continue their march toward total control and dominance of the economy has not materialized. Prais has shown that the share of manufacturing output of the 100 largest corporations in the United States remained constant at 33 percent over the seven year period, 1963 to 1970 while the comparable figures in the United Kingdom show an increase of 4 percent to reach 40 percent.¹⁸ Steiner maintains that:

"There is today in the United States the greatest concentration of economic power that the world has ever seen. About 150 of the largest manufacturing corporations control around 50 percent of all assets of manufacturing companies, and the largest 500 companies own about 66 percent of the economically productive assets in the country, excluding agriculture. In a very large number of industries the three or four largest companies sell a preponderant proportion of the products of those industries. Both these types of concentration have increased only slightly in the past 30 years but, even so, are very impressive."¹⁹

It would seem as though the large firms are no longer growing as rapidly in the developed economies, as they did in the past but interest lies in the analysis and determination of the manner in which these firms were able to achieve their positions of dominance. These firms are dynamic and as has been noted above, very profitable. These firms have been able to arrive at an extremely efficient solution to the problems of growth and competition.

The manner in which firms relate to their environment and the methods they adopt in the allocation of their resources in a competitive situation has been described as strategy. The next section seeks to discuss definitions of management in general, objectives and strategy.

2.2 Concepts of Corporate Strategy

The concept of corporate strategy is the cornerstone of the field of general management. Yet the term is subject to many different definitions and is used in many different ways. Analysis of the literature suggests that there are two broad approaches to the concept of corporate strategy.

The first approach is that of Andrews whose view can be described as "planned purpose" or "conscious strategy".²⁰ The other approach is that exemplified by the work of Cyert and March and which can be described as a "coalition outcome" approach.²¹

2.2.1 The "Planned Purpose" or "Conscious Strategy" Approach

In developing this concept of strategy, Andrews writes:

"Strategy is the pattern of objectives, purposes or goals and major policies and plans for achieving these goals, stated in such a way as to define what business the company is in or to be in and the kind of company it is or is to be."²²

He sees strategy consisting of:

"Two equally important aspects, inter-related in life but separated to the extent practicable here in our study of the concept. The first of these is formulation; the second is implementation. Deciding what strategy should be is, at least ideally, a rational undertaking."²³

Other writers have adopted a similar approach to that suggested by Andrews. Chandler defines the concept as follows:

"Strategy can be defined as the determination of the long term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals. Decisions to expand the volume of activities, to set up distant plants or offices, to move into new economic functions, or become diversified along many lines of business involve the defining of new basic goals. New courses of action must be devised and resources allocated and reallocated in order to achieve these goals and to maintain and expand the firm's activities in the new areas in response to shifting demands, changing sources of supply, fluctuating economic conditions, new technological developments and the actions of competitors."²⁴

Ansoff's definition of the concept of strategy also has a "purposive" flavour. He sees strategy as identifying the "common thread" in the firm and specifies four components of strategy. These are product-market scope, growth vector, competitive advantage and synergy. He maintains that:

"They specify the amount of growth, the area of growth, the direction of growth, the leading strengths, and the profit-ability target."²⁵

Interestingly, Ansoff does not include implementation of the actions necessary to achieve the objectives as part of the strategy as do Andrews and Chandler. Ansoff includes the action area in his definition of administrative decisions.

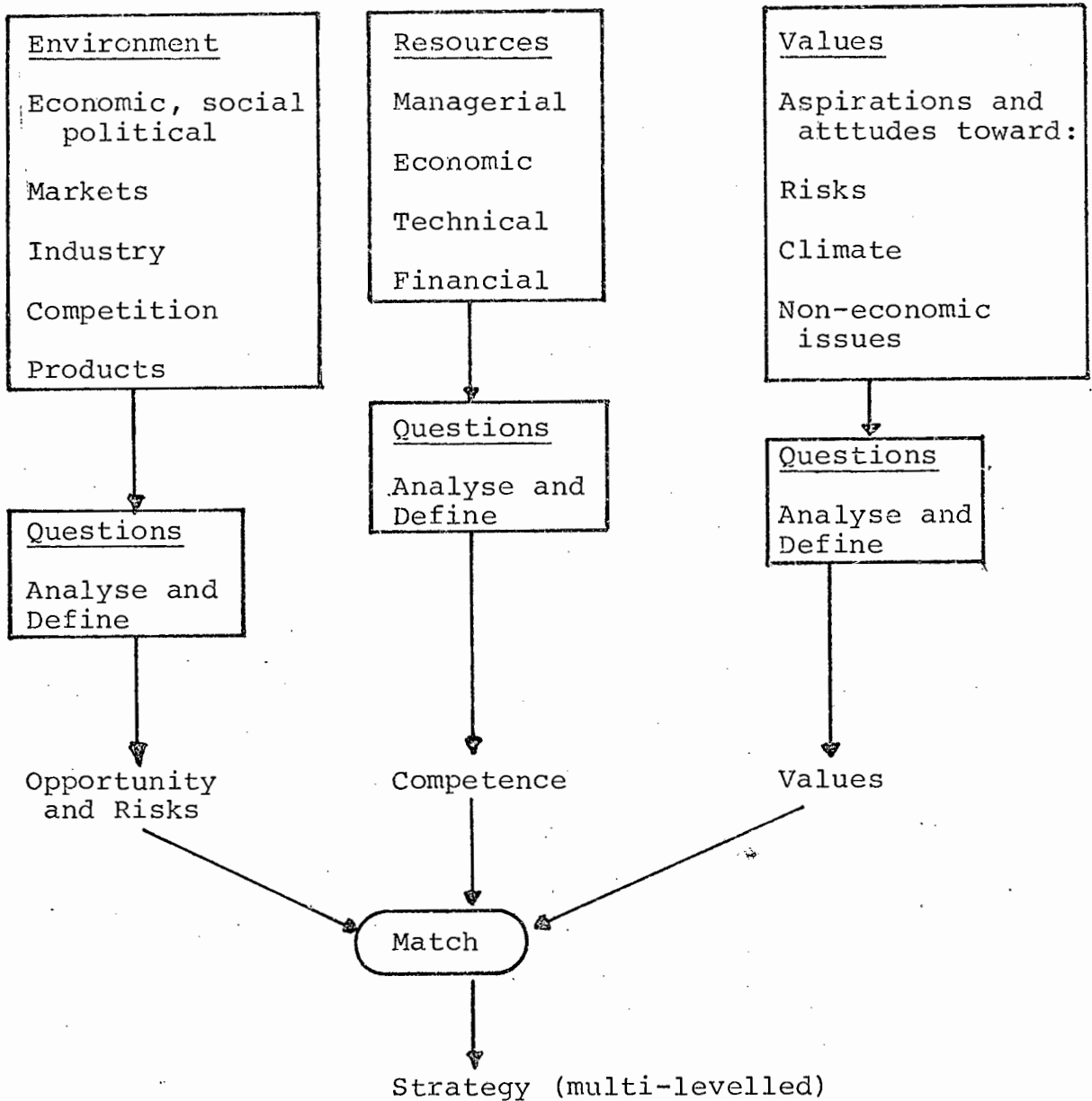
Bower on the other hand sees strategy as a "problem solving" framework when he defines the concept of strategy:

"The concept of strategy helps the manager by converting his planning difficulty into a problem. As with any good problem-solving theory, it provides a metaphor for understanding the problem, provides a structure for the information at his disposal, defines the relationships among the parts of his structure, and provides an orderly sequence of questions for the definition, analysis, and choice of alternatives."²⁶

Bower's emphasis is on the executive's interpretation and the strategy is seen as assisting in the identification of priorities and relationships in the data available and in the situation as he perceives it. Bower's concept of the strategy formulation and implementation stages are shown in Figures 2-1 and 2-2.

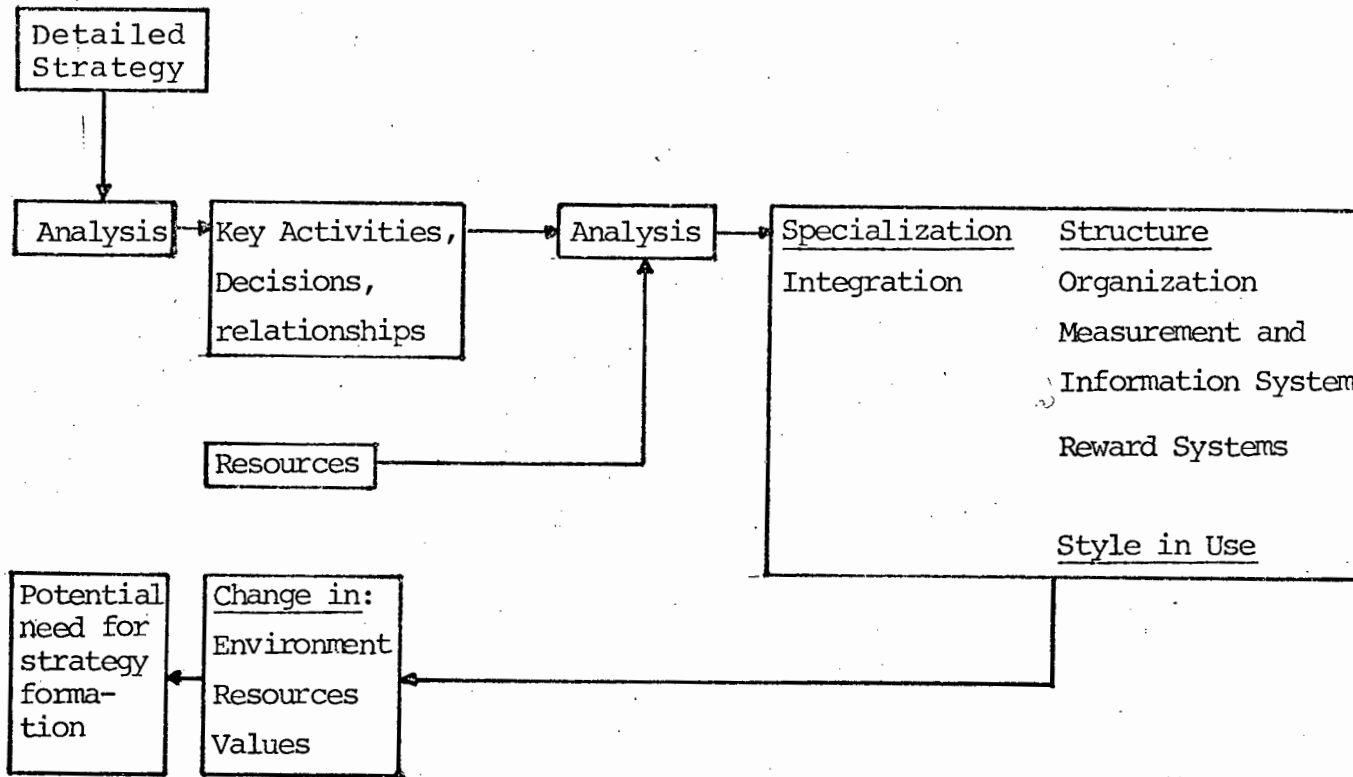
McArthur and Scott define corporate strategy as:

"A concept of how to compete in an industry or industries. Such a concept must be formulated in terms that are specific enough to be operational, that is, to serve as guides to managerial action. That is to say, the concept of how to compete should spell out the market or market segments which the company intends to serve, the kinds of products needed to serve these markets effectively, and skills and resources the company must have to develop these special kinds of products. This concept of how to compete thus includes a statement of where as well as how; as such it provides a much more specific guide to action than some vague expression of a "company philosophy" or hoped for "public image," often embodied in a company credo. Besides this

Figure 2-1Bower's Conceptual Model of Strategy Formulation

Source: Bower, Joseph L., "Strategy as a Problem-Solving Theory on Business Planning", Unpublished Paper, Graduate School of Business Administration, Harvard University, Boston, 1967, page 12.

Figure 2-2

Bower's Conceptual Model of Strategy Implementation

Source: Bower, Joseph L., "Strategy as a Problem-Solving Theory on Business Planning", Unpublished Paper, Graduate School of Business Administration, Harvard University, Boston, 1967, page 12.

concept of how to compete, corporate strategy calls for a statement of specific goals against which progress can be measured (for example, a target market share to be attained, a target growth rate in sales, a target return on investment)."27

This definition also implies a conscious, purposive plan.

2.2.2 The Coalition Outcome Approach

This view, developed by Cyert and March is based on a behavioral theory of corporate behavior. This theory is based on the premises that "people have goals, but collectivities of people do not",²⁸ and that the organization can be viewed as a "coalition".²⁹ The coalition members are seen to include managers, workers, stockholders, suppliers, customers, lawyers, tax collectors, regulatory agencies." Cyert and March disagree with the classic economic view that the entrepreneur/owner defines the goals and that these then become the goals of the organization. They also disagree with the notion that goals are set through conflicts being resolved by consensus. Their view is that these theories are invalid because the theories "both attempt to define a joint preference ordering for the coalition." They maintain that:

"Actual organizational goals cannot normally be described in terms of joint preference ordering. Studies

of organisational objectives suggest that agreement on objectives is usually agreement of highly ambiguous goals. Such agreement is undoubtedly important to choice within the organisation, but it is far from the clear preference ordering usually assumed. The studies suggest further that behind this agreement or rather vague objectives, there is considerable disagreement and uncertainty about subgoals, that organisations appear to be pursuing different goals in the same time."³⁰

A diagrammatic model of the organisational decision process has been developed by Cyert and March.

Cyert and March do not assume that all coalition groups participate in all decisions and suggest that sub-coalitions are formed in certain instances. The complexity of the process can be reduced according to Cyert and March due to the fact that only certain coalitions may be involved while others are seen to be "passive".³¹

Their theory sees organisational objectives flowing from a bargaining process:

"It is primarily through bargaining within this active group that what we call organisational objectives arise. Side payments, far from being the incidental distribution of a fixed, transferable booty, represent the central process of goal specification. That is, a significant number of these payments are in the form of policy commitments."³²

Clearly this view of an organisation does not seem to fit with the concept of the goals of the organisation being consciously selected and consistent but rather

being the result of a process both based on changes in the power and structure of the coalitions. As Cyert and March maintain:

"We have argued that the goals of a firm are a series of more or less independent constraints imposed on the organisation through a process of bargaining among potential coalition members and elaborated over time in response to short-run pressures. Goals arise in such a form because the firm is, in fact, a coalition of participants with disparate demands, changing foci of attention, and limited ability to attend to all organisational problems simultaneously. In the long run, studies of the goals of a business firm must reflect the adaptation of goals to changes in the coalition structure. . . . Finally, we have argued that, because of the form of the goals and the way in which they are established, conflict is never fully resolved within an organisation. Rather, the decentralization of decision-making (and goal attention), the sequential attention to goals, and the adjustment in organisational slack permit the business firm to make decisions within inconsistent goals under many (and perhaps most) conditions."³³

2.2.3 Reconciling the Opposing Theories

It is important to note that the theories are not completely opposed to one another. Andrews recognizes that not all firms will have an explicitly stated strategy statement when he maintains that:

"In the absence of explicit statements, the student may deduce from operations what the goals and policies are, on the assumption that all normal human behavior is purposeful. . . . At the same time, it is desirable not to infer a degree of conscious planning which does in fact, not exist."³⁴

Bower also notes the influence of groups other than top management in the process when he states that:

"The notion that the decisions of subordinates are critical to the choices presented to superiors, that indeed these subordinate decisions may often constitute the true shapers and indicators of corporate commitment, once stated, is obvious....The objectives of management of a large organisation - in the sense that a handful of men who can be characterized as "top management" - are not in any way a sufficient description of the objectives which direct and motivate action at the critical, resource allocating levels of the organisation. Hence, a model which prescribes procedure for resource allocation based on the maximization or satisfaction of "management objectives" is not a complete picture."³⁵

Further research into the long range planning of large diversified firms by Berg supports this view. Berg has stated that "Each of the sub-units of a large, multiunit company will have some interests which are either incidental to or in conflict with the interests of the corporation as a whole."³⁶

McArthur and Scott also recognise the outcome effect when they state that:

"Sometimes almost the only way to discover a strategy is to study the sequence of moves which a company has made in the past, and thus to piece together an idea of what the strategy must have been or might have been."³⁷

They accept that as they "define strategy, not all companies have it, yet every company does, nevertheless,

have a strategy but that this strategy is not inexplicit." Thus Andrews, Bower, Berg, and McArthur and Scott accept that much of strategy can be "implicit" and can therefore be seen to be in agreement with the Cyert and March view based on "outcome."

Salter has also attempted to reconcile the different approaches. Recognising the normative approach suggested by the "planned purpose and conscious strategy" model which stresses the matching of internal capabilities with external opportunities during the strategy formulation stage, he highlights the distinguishing features of the approach which he calls the "Strategy Model" as follows;

- There is an attempt to establish and define objectives before the final analysis of policy alternatives.
- The criteria established during the objective setting process assist in structuring the analytic process, but also ensures that the policy alternatives evaluated and considered are comprehensive and wide ranging. This involves the assessment of the different policy alternatives under various environmental conditions under which circumstances strengths and weaknesses may well change considerably.
- A further feature of this approach is that major changes to policies can be, and will be made if detailed analysis required by this approach indicates that such a change is logical and necessary.³⁸

The major decision making stages of Salter's strategy model are given in Figure 2-4. Salter recognises that in the large organisation, major strategic change is infrequent. The information system to obtain data pertaining to opportunities and threats facing lower levels of the organisation, or diversified divisions, of whose problems and risks

Figure 2-4

Decision-Making Process Implied by the Strategy Model

I	II	III	IV	V	VI
Strategic Intelligence *	Definition of Purpose	Policy Analysis	Strategic Choice**	Time Sequencing	Strategy Review
- Organisa- tional Profile	- Concept of Busi- ness	- of a comprehen- sive list of policy alterna- tives	-Selection of internal- ly consis- tent set of policies which best fits corporate resources and best serves corporate purpose.	-Designa- tion of a timed se- quence of conditional moves	
-Environ- mental Analysis	-Objective	-Assessment of the pro- hibitives of the con- sequences of each alternative		- Action Step 1 etc.	
-Strategic Forecasts		-Evaluate each of consequences for corpor- ate objec- tives			

*Information - questions, insights, hypothesis, evidence relevant to policy.

**The establishment of specific policy represents the most visible evidence of a strategic commitment.

Source: Christensen, C.R., Berg, N.A., Salter, M.S., Policy Formulation and Administration, Richard D. Irwin Inc., Homewood, Illinois, 7th Ed.,

top management may have had little experience, may be extremely complex.³⁹ This complexity "tends to result in discontinuous policy-making" rather than continued modifications of policy."⁴⁰

Salter contrasts the "strategy model" with what he terms the "incremental mode."⁴¹ The "incrementalists" see complex structures being unable to avoid or survive major changes only if these changes meet certain preconditions. Such a precondition may be for example, that the change may only be accepted if that change occurs slowly.⁴² The major distinguishing feature of this approach is that changes are analysed and made within a framework of continuously changing objectives, and states of internal and external environments. Figure 2-5 is an attempt to illustrate the incremental planning mode.

The dichotomy between the two modes and their similarity to the Andrews and Cyert and March approaches is clear. The danger of the incremental approach is that due to its "satisficing" properties it may misallocate resources due to short term result emphasis and the acceptance of the first "acceptable" alternative. Figure 2-6 illustrates this problem.

Figure 2-5

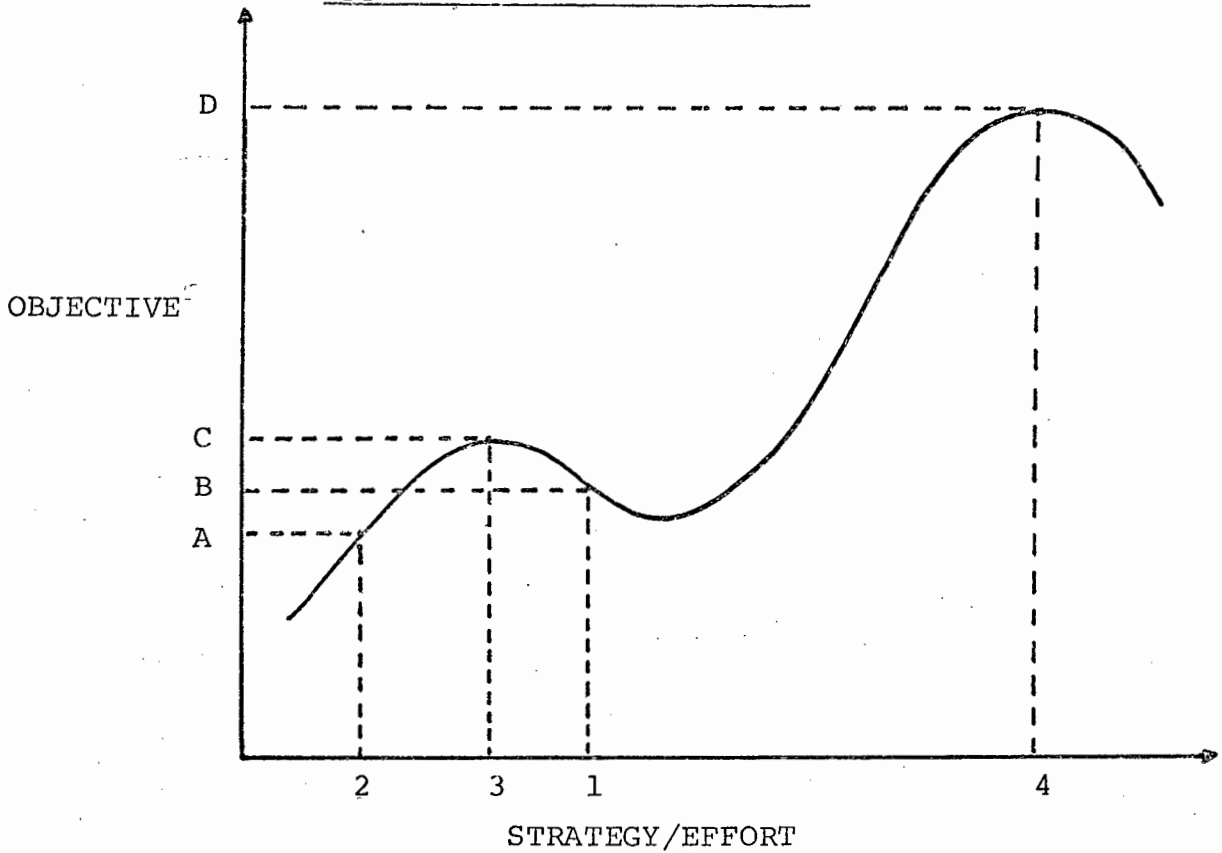
The Incremental Planning Mode

I	II	III	IV	V	VI
Problem Reorganiza- tion	Sequential Consideration of Policy Alternatives	New Policy Tested	New Policy Revised	New Policy Tried in Altered Form	Revision of objectives
-Unexpected external shock to the organ- ization	-Search for policy al- ternatives focussed on specific problems at hand				Continual re- vision of objectives as more is learned about environ- ment and policy alternatives
-Other kinds of feedback from the environment creating uncertainty	-The first satisfactory alternative is accepted; other alterna- tives are ignored.				

Source: Christensen, C.R., Berg, N.A., and Salter, M.S., Policy Formulation and Admin-
istration, Richard D. Irwin Inc., Homewood, Illinois, 7th Ed., page 11.

Figure 2-6

Effects of Satisficing and Optimizing
Approaches on Performance



If a firm adopted the incremental mode it may adopt strategy 1 during the first stage of the planning process, test the policy and achieve A, then revise to strategy 2, test and achieve B, revise again by selecting strategy 3, and obtain the result C. Under these circumstances the firm is likely to accept strategy 3 and set its objective at a level of C. However, this "satisficing" procedure may cause the decision-makers to overlook the possibility of strategy 4 which would produce result D - far in excess of C. If the planning process forced the consideration of all possible strategies, as suggested by the "conscious

approach" or "strategic mode", this situation would not occur.

A spectrum which contrasts the basic philosophies of the strategic and incremental modes is provided by Salter. See Figure 2-7.

2.2.4 Summary

Thus it can be seen that despite the importance of the concept of corporate strategy there exists considerable confusion in the literature. The conceptions of and the terminology used appear to be imprecise and can often have multiple meanings. In addition, the literature suggests that there is relatively little information to hand or agreement on the ways in which decisions, often of considerable importance, are made.

The preceding discussion has attempted to clarify and define the different meanings and interpretations of the concept of strategy in order to place the research into a context which will facilitate the study and hopefully, make it a worthwhile project. The following section of this chapter examines the firm over its "stages of development" or "life cycle" and seeks to identify the major strategic issues that it faces during this period.

Figure 2-7

A Spectrum of Planning ModelsStrategic Planning

- more comprehensive analysis
- objectives defined prior to evaluation of major policy alternatives
- major changes in goals and policies considered feasible
- Intermittent changes in policy

Incremental Planning

- more incremental analysis
- continual revision of objectives as more is learned about environment and policy alternatives
- only marginal moves considered feasible at any point in time
- continual modification in policy

Source: Christensen, C.R., Berg, N.A., and Salter, M.S., Policy Formulation and Administration, Richard D. Irwin, Homewood, Illinois, 7th Ed., page 12.

2.3 The Theory of Corporate Development

Corporate development is inextricably tied to the ability and objectives of management. It is thus necessary to define both management and objectives of management. Definitions of management and of objectives are many and varied and it is difficult to find agreement in the literature. Bower defines managing as:

"The activity or task of determining the objectives of an organisation and then guiding the people and other resources of the organisation in successful achievement of these objectives."⁴³

Barnard, sees management as "the essential executive functions" which are, "first, to provide the system of communication; second, to promote the securing of essential efforts; and third, to formulate and define purpose."⁴⁴

Christenson, Andrews and Bower define management as; "Leadership in the informed, planned, purposeful conduct of complex organised activity," and define general management as the management of "a total enterprise."⁴⁵

The objectives of the business are clearly related to the organisations central purpose. Ansoff maintains that the purpose of the business is to; "Optimise the efficiency of its resource - conversion process." ⁴⁶

Andrews believes that "objectives can be all-encompassing or specific" and that because "action, policy and

purpose change roles so readily "that it seems wise" to sidestep the problem of drawing distinctions between objectives, policy and programmes of action, and to avoid speaking of single or functional strategies except as aspects of total corporate strategy."⁴⁷

Drucker's statement on this topic suggests that he agrees with Andrews as he states that a purpose of a business is to "create a customer", and that a central objective of a firm is "survival" and he believes that the main task of management is "economic performance".⁴⁸

Other writers emphasis profit and/or return. Hayek maintains that objectives which do not seek to maximise return can be dangerous when he states:

"It is precisely the tendency to allow, and even to impel, corporations to use their resources for specific ends other than those of a long range maximisation of the return of the capital placed under their control which tends to confer upon them undesirable and socially dangerous powers and that the fashionable doctrine that their policy should be guided by "social consideration" is likely to produce most undesirable results.... The only specific purpose which corporations ought to serve is to secure the highest long term return on their capital."⁴⁹

Hayek stresses that this objective should only be sought in general, and be draped by legal and moral rules. Friedman agrees with this view when he states that:

"There is one and only one social responsibility of business - to use its resources and to engage in activities designed to increase its profits so long as it stays

within the rules of the game, which is to say, engages in open and free competition without deception or fraud."⁵⁰

If these definitions are combined it seems that the objectives of a business relate to the efficient and economic use of the resources under its control, to provide the goods and services required to satisfy the demand in the market and thereby to ensure its survival.

If this definition of the objectives of the firm is adopted, then profit and return can be regarded as a measure of the efficiency of performance in achieving central purpose of the organisation, - which can be described as survival. As stated above, Cyert and March believe that organisations per se, do not have objectives - only people have objectives. Clearly, the basic assets of a business such as land, buildings, equipment, plant, machinery do not have "objectives" and thus the people who form the management team of the company can only have objectives.⁵⁷

The Cyert and March theory however, tends to overlook the fact that there are different kinds of organisations. Certain organisations, for example, exhibit features which suggest that they do have purpose and objectives of their own. That is to say that they have objectives which are separate from the groups of people who constitute the management of the organisation. In these

organisations, the corporate culture seems to dominate and managerial behavior is shaped by the organisational climate.

The economic definition of the objective of the firm, namely, profit maximisation, is one of the most frequently attacked corporate objectives. The number of critics of profit maximisation as a corporate goal have increased considerably over the last twenty years and these critics have in turn produced competing hypotheses of business motivation. The most powerful of these alternative hypotheses, is that managers do not seek to maximise profit but rather seek to maximise growth.

Baumol believes that corporate growth , as measured largely by growth in assets and turnover and thus "size" is the primary goal of management when he states:

"The businessman's concern with his market share, the large firm's ability to spread its risk, and the fact that the stockholder gains primarily through business growth, all makes for expansion."⁵²

Galbraith also emphasizes growth as a key managerial objective but believes that growth in sales, rather than growth in assets, is the measure which concerns management most when he states:

"Nothing is so compelling as the need to survive. However, there is little doubt as to how, overwhelmingly, this choice is exercised; it is to achieve the greatest possible rate of corporate growth as measured in sales.... No other social goal is more strongly avowed as economic growth.... Given a secure level of earnings, the esteemed

firms are those that are large - that have a record of achieved growth - or which are growing at a particular speed. Increasingly, the esteem is associated with the latter."⁵³

This theory compares favourably to profit maximisation as a corporate goal because it is simple and relatively easy to measure. Marris maintains that the chief obstacle to its gaining a more general acceptance has been a fact that it has been difficult to produce empirical evidence which enables a distinction to be made between a growth and profit motives of managers.

Marris has argued that:

"We have repeatedly indicated that orthodox econometrics measurements may not easily discriminate between our models and potential rivals, or between alternative interpretations of our models as such; in truth, despite appearances, the theory of the individual firm presents the statistician with a surprisingly acute identification problem."⁵⁴

The financial literature on the other hand indicates that this discipline believes that the objective of the firm is to maximise the value of the firm to its shareholders. The value of the firm is measured by the market price of the firms ordinary shares which are a measure or an assessment of the firm's overall posture in the environment. This assessment is based on the firm's investment, financing, dividend and market decisions.⁵⁵

It would seem obvious that total profits are not a good indicator of corporate performance. For example, a

firm could issue new equity capital and merely invest the proceeds in government stock. This would improve the profits. Yet most investors would hardly see this as a satisfactory method of conducting business operations simply because they could invest in government stocks personally and obtain a greater return as they would and not have to pay a management "fee". Certain businessmen, on the other hand, focus on the maximisation of earnings per share as their major criterion of corporate performance. Earnings per share are not a satisfactory method of corporate evaluation due to the fact that this value can be easily manipulated by the use of differing accounting policies. Earnings per share also do not take into account the time horizon nor do they incorporate a measure of the risk that the firm faces. Obviously certain businesses are more risky than others. There are many examples of firms with the same earnings per share but the market value of the total equity may differ considerably. This issue will be discussed in depth in Chapter 4 which explores the problems of financial evaluation of business firms.

Clearly then the literature has revealed that the prime objectives of the firm are far from resolved, but three major objectives of the firm appear to be given priority in the literature. These are:

- Profitability
- Growth
- Survival.

In the ongoing company it appears to be very difficult to distinguish which of the three objectives listed above is paramount, and it would seem that each of these is given priority depending on the circumstances that face the particular firm. A competitive environment demands that a business must be profitable to survive. And in order to survive companies may, due to constraints on profitability, growth and competitive activity, be forced to seek new products to expand existing operations, or possibly even diversify into business areas unrelated to their present fields of operation.

Management, in attempting to achieve the objectives of profitability, growth and survival must often make decisions based on incomplete and inaccurate information, which may involve a trade-off between conflicting objectives. For example:

Short-term Profit versus Long-term Growth.

It is relatively simple for management to maximise short-term profits. All this involves is a cut back on expenditure in the fields of advertising, research and development, management training, service and other similar expenditure items. However, by investing funds in research and development which may only pay off some

time in the future, management are effectively reducing the short term profit expenditure in the anticipation in improving the long term growth potential of the firm. A decision to enhance the current profit figure by reducing such expenditure (often considered an investment rather than expense by certain managers), will in many cases dilute the firms ability to compete effectively in the future.

Profit Margin versus Competitive Position.

This trade-off is similar to the one above in that competitive position namely, market share, can be improved by reducing prices. This serves to reduce the profit margin and raises the breakeven point of the firm. In a price elastic market this will have the effect of increasing market share and in certain cases, return on investment. The relationship between return on investment and market share has been shown to be very strong in the PIMS study carried out in the United States of America.⁵⁶

The findings are given in Table 2-2 below.

Table 2-2
Relationship of Return on
Investment to Market Share

Market Share %	Return on Investment (before tax)
10 and less	9%
10 - 20%	14%
20 - 30%	18%
30 - 40%	24%
40% plus	30%

Source: Bussell, Robert D., Gale, Bradley T., and Sultan, Ralph G.M., "Market Share, a Key to Profitability," Harvard Business Review, Jan.-Feb. 1975 pp 97-106

This relationship clearly shows why management are so concerned with market share. In a competitive market, management must obviously decide between maintaining profit margins in the face of competitors reducing their margins and thereby losing market share, or market aggressively by increasing advertising, pricing aggressively, providing better service, longer guarantees and higher product quality - all of which serve to reduce profit margins but will increase market share and hopefully, return our investment.

Direct Sales Effort versus Market Development Effort.

Here management must decide between a strategy of market penetration and market development. Ansoff's matrix illustrates this concept as shown in Figure 2-8.⁵⁷

Figure 2-8
Ansoff's Matrix of Strategic Choice

	Existing Market	New Market
Existing Products	Market Penetration	Market Development
New Products	Product Development	Diversification

Source: Ansoff, H. Igor, "Corporate Strategy," McGraw-Hill, Inc. New York, 1965, page 109.

A firm which intends marketing an existing product in an existing market, can be said to be following a strategy of market penetration. In this case the firm will seek to optimize sales and profits and if possible, dominate the market. The firm which markets an existing product in a new market can be said to be developing new markets. Generally, a firm will tend to move to market development when it believes its present products will soon experience the product-life cycle effects of saturation and will seek a new growth market by exporting or marketing to new users or consumers. Obviously both these strategies have risks. The market penetration strategy requires that market share be improved. However market share improvement as discussed above, implies profit reduction in order to increase the market share. Market development, on the other hand, involves considerable risk as the firm has little knowledge of the market or experience in reaching new market segments. The strategy selected will obviously depend on management's view of the competitive situation in each of the markets. This is the equivalent of management believing that the risks of market development are less than the risks of market-penetration or vice versa.

Related versus Diversified Opportunities for Growth.

Referring to Figure 2-8 above the firm has an additional choice. It can penetrate its existing market,

develop new markets, or develop new products. This involves the development of new products for the existing markets. On the other hand, a firm can choose a non-related area. For example, where it does not have any skills either from the product or market points of view and market a completely new product in a completely new area.

Ansoff describes the marketing of a new product in a completely new market as strategy of diversification. Each of these strategies has its advantages and disadvantages. By staying in a related area the firm becomes tied to a particular industry and therefore its performance will be tied to the performance of the industry in the overall economic climate. A firm which is for example, heavily committed in the construction industry must expect its fortune to fluctuate with those of the general industry. On the other hand, if it seeks to diversify it could serve to reduce these fluctuations and therefore produce a more stable earnings pattern. Diversification strategy, has the major disadvantage or risk, that management does not possess, or may possess, relatively few skills in the new market area, and therefore may be unable to produce a satisfactory return and may in fact be at a serious disadvantage from a competitive point of view. Obviously a firm which chooses to adopt a strategy which will move either vertically or horizontally from its initial strategy of market penetration will still retain knowledge and

skill pertaining to either the product or the market and such strategies will involve relatively lower risks than a diagonal move into diversification. Following Ansoff's terminology, this strategy entails both new markets and new products and would therefore be more risky.

Growth versus Stability

Management must decide whether they wish to grow, and at what rate they wish to grow. Or management can decide to reduce growth and to strive for stability. Each of these two alternatives obviously requires different skills. The growth strategy will require that management be risk-acceptors and adopt innovative and aggressive business strategies. Innovation is generally regarded as being high risk due to the high probability of failure whilst an aggressive strategy may invoke competitive response which also raises risk. The stability choice on the other hand, requires managers who are less innovative and entrepreneurial, and who believe that consolidation and stability are preferable to change and growth. Such a strategy also contains high risk elements. Competitors may innovate and make the firm's product obsolete or the firm may become attractive to outsiders who do perceive benefits in an aggressive managerial style and who will attempt a take over. This choice will determine whether management will seek risky environments where the returns

are correspondingly high, or whether they will seek riskless environments, where returns are relatively low. As stated above, the objectives will define or shape the manner and the rate of corporate development.

A brief review on the major approaches to corporate development is discussed in the following section.

2.4 Theories of Corporate Development

2.4.1 Science Based Theories

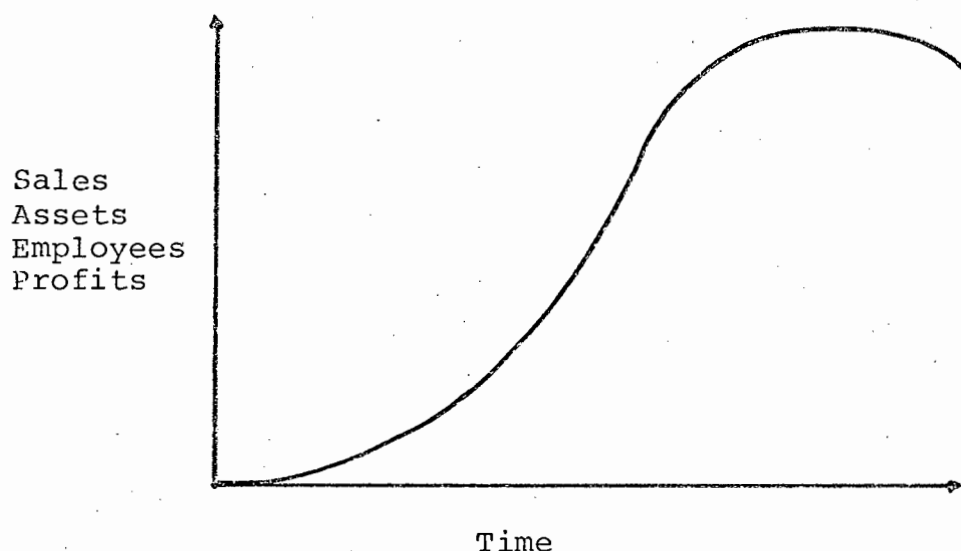
A number of theories on corporate development have been drawn from the natural sciences. These theories, are drawn from such fields such as biology and maintain that all organisms grow rapidly at first but then as the organism becomes older, its rate of growth slows and eventually ceases. This theory has become known as "the life cycle" theory. This approach has been used fairly extensively in the literature to describe not only growth but also the cessation of growth.⁵⁹ McGuire maintains that one of the first uses of this analogy was made by Alfred Marshall in 1890.⁶⁰

....here we may read a lesson from the young trees of the forest as they struggle upwards through the benumbing shade of their older rivals. Many succumb on the way, and only a few survive, those few become stronger with every year, they get a large share of light and air with every increase in their height, and at last in their turn they tower above

their neighbors, and seem as though they would grow on forever, and forever become stronger as they grow. But they do not. One tree will last longer in full vigor and attain a greater size than another, but sooner or later age tells on them all. Though the taller trees have better access to light and air than their rivals, they gradually lose vitality, and one after another they give place to others which, though of less material strength, have on their side the vigor of youth."⁶¹

In a corporate sense, the firm will begin when an entrepreneur believes he possesses skills or knowledge that will allow him to penetrate a particular market. Often this takes the form of a development of a new product, a more skilful marketing technique such as a more creative advertising approach or more efficient methods of distribution which will enable the entrepreneur to reach the market more efficiently or more economically. The entrepreneur will then seek to raise capital and will begin operations. If the entrepreneur has correctly identified that the market opportunity and if the organization is capable of satisfying or exploiting the opportunity the firm will expand. The entrepreneur has been able to convert what was a market opportunity into a corporate opportunity. As the firm expands it will typically follow the traditional "S" curve as indicated in Figure 2-9.

Figure 2-9

The Life Cycle "S" Curve

If the firm is a success, the expected return on investment, discounted for uncertainty, will tend to rise during the stages of rapid growth as the uncertainties surrounding the new firm will have been reduced as production will have commenced and sales achieved. During this rapid growth period the shareholders will require that all the profits be reinvested in the firm in order to maximize the value of the ordinary shares. This and other valuation and growth concepts will be discussed later in the study.

In summary then, for the purpose of this discussion, it is assumed that the firm will tend to retain earnings and thereby reduce dividend payout ratios in order to fund the expansion of the business. It is also likely that the new firm will be forced to raise additional outside capital during this growth phase. During the growth phase competitive products are likely to be introduced into the market as competitive and other entrepreneurs become aware of the market opportunity. The new competition is likely to try and improve the product or service and profit opportunities are likely to decline. The life cycle theory then predicts that the market will tend to mature and ultimately to saturate and as growth opportunities decline dividends are likely to be increased and unless the firm diversifies or enters new markets, or develops new products all remaining funds will be paid out in the form of dividends and the firm will cease to exist.⁶²

This theory does however, process certain limitations. For example, the growth of a firm is not necessarily just the function of age. The rapid growth of firms like Pick 'n Pay and Pep Stores in the recent past suggests that new firms can grow very rapidly but firms like Anglo American, and Barlows also provide evidence that older firms are also able to grow at a significant rate. This

is so because no matter what the age of the organisation its actual performance, is likely to be a function of its managements objectives, due to what Ansoff has called the "purposive" nature of the organisation.⁶³

McGuire puts it neatly when he states:

"The fact is, of course, that the firm is not a biological organism. As defined, it is composed of persons who determine its course, or at least to a degree, and who give it the will to change direction. The firm's growth pattern depends to a great extent, upon the decisions made by its executives and are not contingent solely upon its age. To be sure, a firm may be buffeted and tossed about by external forces - by competition, changes in fashion and taste, and other factors - but basically its survival and even its growth is determined by the responses and actions taken by those who direct its course. Biological organisms can do little to alter the growth patterns from within. They cannot 'will' their growth, except in the most general manner and the method of birth, the nature of growth, and the fact of death are fairly well determined by natural laws. There is no reason to suppose, however, that the firm necessarily be passive about its growth or death, for the persons who make decisions can alter the factors responsible for the path that it can take and the end it can reach."⁶⁴

Clearly then, any theory which is solely dependent on the age of the organisation or the criterion for growth and development has serious limitations.

2.4.2 Evolutionary Growth Theory

Another set of theories related to the natural sciences is known as the evolutionary theory of growth.

This theory, as the title suggests, is that the firm tends to evolve in response to its environment. Based as it is in the "Darwinian Theory" it implies the process of natural selection.

This approach implies a change from one species to another and not nearly a transition. McGuire describes this theory as follows:

"The concept of growth, therefore, is likened not to the transition from small to large, but to the evolutionary changes that occur when one species is altered to an allied, but unique species. The analogy is not one of growth from childhood to adulthood, but rather of change from fish to land mammal; from ape to man. The distinction exists: small firms and large firms, although of the same family, are just not identical, and the differences between them are so great that it is unrealistic to think of small firms as simply being miniatures of our giant corporations."⁶⁵

Other writers have also noted the difficulty of the comparison between small and large firms. Whyte states that:

"...the small business is praised as the acorn from which a great oak may grow, the shadow of one man that may lengthen into a large enterprise. Examine businesses with fifty or less employees, however, and it becomes apparent the sentimentality obscures some profound differences. You will find some entrepreneurs in the classic sense - men who develop new products, new appetites, or new systems of distribution - and some of these enterprises may develop into self-perpetuating institutions. But very few. The great

majority of small business firms cannot be placed on any continuum with the corporation."⁶⁶

McGuire argues that the evolutionary theory "gives little information on the reasons why some firms evolve and others do not, nor hint at the stage where metamorphosis of the firm takes place, i.e. that form where the form of the enterprise is altered."⁶⁷ This theory also suffers from the major limitations mentioned above in that it ignores "the purposive" role of management. The whole concept of strategy is concerned with management's roles to attempt to influence the environment rather than merely react to changes in that environment. The evolutionary theory implies that management is passive and reacts to the environment and has no influence over the destiny of the company. If it is true that the firm merely reacts to environment then success in corporate terms is very dependent of "luck". The modern day business manager almost certainly would not admit to luck being the major determinant to his company's success.

2.4.3 Economic Based Theory

The economist bases his theory on efficiency. Efficiency is "cost reduction" orientated. The firm is expected to grow to that point where average costs are minimized. The theory is based on perfect markets which assume that the business man has perfect

information as to prices, costs, competitive activity and future returns. The theory also possesses the further limiting factor from a practitioner's point of view in that it assumes that all competitors in the market have the same information. The implication is that all firms in the same industry who all have perfect knowledge of the market can then be expected to all be of the same size. This is obviously not the case.

It is possible to describe the growth and development of the firm in terms of Rostow's "stages of economic growth" theory.⁶⁸ This theory is based on the economic growth pattern of an economy and covers five different stages.

2.4.3.1 The Traditional Society

Rostow defines this stage in economic terms as "a traditional society is one whose structure is developed within limited production function."⁶⁹

Rostow continues, "the level of productivity was limited by the inaccessability of modern science, and its frame of mind."⁷⁰

This stage is similar to that of the small business, managed by the entrepreneur. Levels of productivity in the small firm do appear to be limited by the level of managerial and other skills such as production, technology and control. In addition, small businessman does appear

to be bound by conventional, traditional ways of doing business in his industry. The apparent reluctance of the corner grocery store owner to adapt to the new concept of the supermarket is perhaps an example of the inflexibility or unwillingness to cast off the traditional methods of grocery merchandising.

2.4.3.2 The Pre-conditions for Takeoff and Takeoff

Rostow believes that the basic infrastructure of the economy was laid during this stage. More modern techniques begin to be employed in the economy and the basic infrastructure of transport, communications, banking, financial institutions are developed. This stage is comparable in the corporate sense in that the firm will during this stage perceive that growth is possible and the management will begin to become more professional. Management will begin to organise and plan for the development of the firm, either through the development of new products or geographical expansion into new markets.

The "take-off" stage for the business firms seems to parallel that of the economy reasonably well. As in the case of the economy, the "take-off" and rapid growth are dependent on similar factors in the case of the small firm. The opportunities are seen to exist and the capability of the firm to convert an environmental opportunity into corporate growth appears to depend very heavily on the availability of capital and capable management.

Rostow describes this stage as follows:

"We come now to the great watershed in the life of modern societies, the third stage in this sequence, the take-off. The take-off is the interval when the older blocks and resistances to steady growth are finally overcome. The forces making for economic progress, which yielded limited bursts and enclaves of modern activity, expand and come to dominate the society. Growth becomes its normal condition. Compound interest becomes built, as it were, into the habits and institutional structure."⁷¹

The economy, during the take-off stage produces an increased rate of saving and capital formation and a formation of the manufacturing industry of the economy. In addition, unused resources are exploited and increased productivity and commercialisation produce rapid growth. The analogy from a corporate point of view is likely to be that management of the firm is almost totally in control of professional management and the firm would tend to be vertically integrated and will seek to control the complete production process wherever this is possible.⁷² The firm will thus expand both into both manufacturing and distribution on a wider scale.

2.4.3.4 The Drive to Maturity

This phrase sees sustained growth over a long period of time as the economy expands and increasingly employs modern technology in all spheres of activity. Rostow maintains:

"The make-up of the economy changes increasingly as technique improves, new industries accelerate, old industries level off. . . . Some 60 years after take-off begins (say, 40 years after the end of take-off) what may be called maturity is generally attained.

Formally we can define maturity as a stage in which the economy demonstrates the capacity to move beyond the original industries which powered its take-off and to absorb and to apply efficiently over a very wide range of its resources - if not the whole range - the most advanced fruits of modern technology."⁷³

From a corporate point of view, the business now becomes a multi-product company with the older products facing product life cycle decline whilst others are in the introduction and growth phases. The firm has moved beyond the original business or product and will probably have changed its personality or character completely.

2.4.3.5 The Age of Mass Consumption

During this, the last stage, the economy seemed to move towards a high standard of living for the total population. An economy is seen to move towards increasing social welfare benefits. The company, in a comparable stage of development, will be seen to have multiple objectives and will be regarded as being "socially responsible".

2.4.4 Summary

A major criticism of the science based and evolutionary theories discussed above has been that they are based on biological theories which see the firm as moving inexorably through a life cycle which ranges from birth, through a period of rapid growth through a period where the growth rate slows, finally ceases, and the organism dies. The theories can also be seen to be based upon evolutionary thinking, which implies a mutation from one form to another, different form. These theories ignore the "purposive" nature of the business organisation and the ability of the decision makers to influence the destiny of the firm. These theories imply a form of development over which management has little, or even no control.

In the Rostow model development of the firm appears to parallel the development of the economy reasonably well. Although the Rostow approach may explain "how" firms grow, it does not answer the questions relating to "why" firms grow.

Certainly the analogies of the scientific, biological, evolutionary and economic models to the growth and development of business firms should be retained and kept in mind. There does appear to be a "life cycle" pattern in the histories of certain firms. Furthermore, certain firms do seem to "evolve" rather than simply "grow" in size. All

these theories provide clues as to the underlying causes of and reasons for corporate growth and development. Each of the theories taken on its own may possess certain weaknesses but when combined they provide a useful starting point or background, from which studies, which are specifically aimed at explaining and interpreting the growth and development of business firms, may be contrasted and compared. The following section presents a summary of the important studies and literature in this field which examines the development of the firm using many different variables and does not rely on a single variable such as "age".

2.5 The Stages of Corporate Development

This section will examine the literature in this field which aims to explain and predict the problems faced by a firm as it expands both in size and markets. Each of the major studies will be examined individually due to their importance in the field.

2.5.1 The Chandler Study

This study, considered to be classic in the field examined the development of some seventy large United States firms and in indepth study of four companies namely, Du Pont, General Motors, Sears Roebuck and Standard Oil, were examined in depth. Chandler found certain similarities in the ways in which these firms were able to adapt to a changing environment.⁷⁴ Chandler believes that structure follows strategy. This idea revolves around the concept of the firm first exploiting market opportunities and then developing the organisational and administrative systems to support the market activities. Chandler states:

"The thesis deduced from these several propositions is then, that structure follows strategy and that the most complex type of structure is the result of the concatenation of several basic strategies. Expansion of volume led to the creation of an administrative office to handle one function in one local area. Growth through geographical dispersion brought the need for a departmental structure and headquarters to administer several local field units. The decision to expand into new

types of functions called for the building of a central office and a multi-departmental structure, while the developing of new lines of products or continued growth on a national or international scale brought the formation of the multi-divisional structure with a general office to administer the different divisions."⁷⁵

Chandler's study was concerned with the development and diversification patterns of the four companies mentioned above and concerned largely with the administrative burdens that were placed on management as a result of their diversification and growth strategy. Chandler found these companies to be functionally organised during their early stages but he saw that this form of organisation possessed one major weakness. This was that very few executives at the top of the company were involved with the major, and important decisions. Chandler found:

"As the enterprise reached the limits of the existing market set by available consumer income, the state of technology, and the location of population, and as it came to the limits of cost reduction through rational and systematic integration and use of its resources, its senior executives began to seek new markets or new lines of business where they might apply some resources only partially used, or where existing ones might be employed more profitably. A threatened decline of existing demand even more dramatically increased the pressure to find new markets. Not only did they seek these overseas but they also took their markets into new lines of business that were similar enough to its existing activities to permit a transfer of resources. The latter type

of expansion was practical, however, only if some skills of some of the personnel and the capacities could be transferred without too great a cost to new lines. Finally, those companies that did develop new markets or products then had to reshape the channels of communication within the enterprise. Otherwise, the officers managing in the several activities lost contact with the new and even the old markets, and the senior executives had increasing difficulty in allocating intelligently the expanded and more varied resources at their command."⁷⁶

Chandler's findings therefore show that if the large company wishes to continue its growth and to achieve this growth through diversification, it will soon lead to a breakdown of management communication and integration and the organisation will ultimately be faced with a choice. This will mean that either the strategy of diversification will have to be abandoned and thus its very survival may be threatened, especially in a rapid change environment, or it could modify the organisation in some way so as to overcome the problems of communication and integration. Chandler's research shows that diversification and growth strategies were not abandoned and that it was the existing organisational structure that was changed in order to achieve corporate objectives. He states:

"A preliminary survey of the 50 largest industrial corporations in the U.S. ... showed that in recent years what may be called the multi-divisional type of organisation has become generally used by industrial firms carrying on the most diverse economic activities."⁷⁷

Chandler describes the multi-divisionalised organisation as follows:

"In this type of organisation, a general office plans, co-ordinates and appraises the work of a number of operating divisions and allocates to them the necessary personnel, facilities, funds and other resources. The executives in charge of these divisions in turn have under their command most of the functions necessary for handling one major line of product or set of services over a wide geographic area, and each of these executives is responsible for the financial results of their division and for its success in the market place."⁷⁸

In other words, the functional responsibilities of the management team were no longer held at the top level, but were rather lower down in the organisational and were held at the divisional level. These divisions were organised on a geographical or product basis and were viewed as profit centres.

Chandler continues:

Expansion, primarily through diversification, enlarged the range, number, and the complexity of the entrepreneurial activities required of the senior executives. The long term allocation of resources now involved deciding between the expansion, maintenance and contraction of personnel, plant, and equipment in several different large scale, wide spread businesses. The appraisal of existing performance as well as the planning of future uses of resources called for a general office in which the executives were given the time, the information, and the encouragement to develop broad view, all so necessary for the handling of the new and more complex problems."⁷⁹

It seems the success of the divisionalised form of structure which as Chandler maintains, flow from the strategic decisions to diversify into various product lines was a major factor contributing to the trend of diversification. Chandler states that:

"Once the new type of structure became known, as it did during the 1930's, its availability undoubtedly encouraged many enterprises to embark on a strategy of diversification, for the ability to maintain administrative control through such an organisational framework greatly reduced the risks of this type of expansion, in fact, the systematising of strategic decisions through building of a general office and the routineising of product development by the formation of a research department have, in a sense, institutionalised this strategy of diversification."⁸⁰

In summary, Chandler's thesis is that firms that adopt a strategy of diversification will tend to experience organisational problems, and in order to overcome these problems, the firm is likely to adopt the multi-divisional organisation form. Chandler believes that the trend to diversify, in response to technological demands and development, is likely to continue:

"As the population continues to grow, and become more and more suburban, as technology becomes more intricate and more fruitful, and as the demands for the industrial markets become more complex, the activities of many American enterprises should become still more diverse and still more complicated."⁸¹

Chandler further believes that multi-divisional form of organisation encourages the development of new products due to the fact that the divisional form of organisation

tended to institutionalise diversification.

2.5.2 The Scott Research

This approach is essentially a marriage of Chandler's findings, which identified the uniformities in the manner in which companies adapted to their environments, and risks, and described as "structure following strategy," with the Rostow model of economic growth.⁸² The Scott approach to the development of the firm is unique in that it is based on "managerial adaptations" and not on biological patterns, such as size, age or life cycle.

The model is constructed around four hypotheses:

- Firstly, that there are significant regularities to the way in which companies are organised,
- Secondly, that these regularities stem from the managerial requirements of a similar set of activities more than from size or "age" per se,
- Thirdly, that there is a characteristic sequence to the sets of activities managed, and hence,
- Fourthly, a characteristic sequence (1, 2, 3. . .) to the organisational adaptations.

This model has drawn on Salter's study in which Salter states his "partial theory of corporate development" as follows:

- Evolution of Product-Market Relationships:
In dynamic economies such as that of the United states, the product-market relationships of manufacturing firms tends to become more complex over time.
- Organisational Structure of Manufacturing Firms:
The form of organisation of manufacturing firms tends to vary directly with the complexity of their product-market relationships.

— Evolution of Organisational Structure:

Therefore the organisational structure of manufacturing firms tends to change as their product-market relationships become more complex.

— Stages of Development:

At any given time manufacturing firms can be arrayed along a spectrum in relation to the degree of complexity of their product-market relationships, and four clusters of firms can be identified along this spectrum which represents four characteristic stages of organisational or corporate development.

— Alternative Paths of Development:

Therefore it can be said that a given manufacturing firm tends to evolve in the direction of stage 1 toward stage 4 as its product-market relationships become more complex if;

- The long term product-market strategy focusses primarily on expanding the existing product line, then the sequence of organisational development will tend to be Stage 1, 2 and 3 in that order with Stage 4 only following a dramatic shifting in strategy toward multiple products.
- The long-term product-market strategy focuses primarily on developing new products or lines of products, then the sequence of organisational will tend to be Stage 1, 2 and 4 with the Stage 3 form of organisation appearing only as a product division expands to such an extent as to merit geographical decentralization.⁸³

2.5.2.1 Identifying the Stages of Development

It is clear that as firms start up and develop and are successful, they experience a number of important changes. For example,

- Sales and expenditures rise
- Gross profits as a percentage of sales may increase as the production functions "learns" to refine production techniques and as scale economies are brought into being,

- The assets employed in the firm will increase,
- Managerial roles and activities increase in number and functional specialization,
- Operating problems will increase in scope and complexity,
- The number of products sold and produced may increase,
- The number of geographical markets in which the product are sold will increase,
- The products will be marketed to an increased markets or consumer segments,
- The information systems to plan, monitor and control these increasingly complex tasks will have to be continually updated to provide the wider span and increased levels of management with actionable data.

The "universe" of firms in an economy ranges in size and complexity from the small individual proprietor or "Mom and Pop" store, to the sprawling multinational giants like Anglo American and the Rembrandt organisation. Scott has developed the following five-stage model to cover the spectrum of companies, based largely on the managerial problems faced at each stage of development. See Table 2-3.

Table 2-3

The Five Stage Developmental Model of the Firm

<u>Stage</u>	<u>Description</u>	<u>Key Problem</u>
1	Very small firm with little or no full time management.	Expansion of volume
2	One function, one area	Expansion geographically
3	Department structure with headquarters and field units.	Vertical integration (new functions)
4	Central office and multi-departmental structure.	Diversification
5	Multi-divisional structure	Resource-allocation

Source: Adapted from Scott, Bruce R., op. cit. page 3, based on Chandler, Alfred D., Strategy and Structure, op. cit., pages 16-17.

The classification into five stages may appear to be an oversimplification, of the real world situation. Scott, accepting the problem of oversimplification, collapses the five groups into three groups and justifies the move to three stages as follows:

"though five classes of firms can hardly be excessive for a population numbering in the millions, and though Chandler's argument seems a clear and concise one, the present model is based on still fewer categories. The reason for reducing an already modest number of categories is the belief that it is useful to develop the categories and model upon a cluster of internal managerial characteristics in preference to Chandler's emphasis on structure, and totably to his emphasis on levels within the structure. Roughly speaking, we will collapse his first and second categories into a single one, and his third and fourth into another, thus leaving three instead of five."⁸⁴

The three "collapsed" stages suggested by Scott and derived from the five stages proposed by Chandler in Table 2-3 above, are presented in Table 2-4 below.

Table 2-4

Scott's Three Major Stages of Development

<u>Stage</u>	<u>Description</u>	<u>Key Problem Area</u>
1	Small company with one or a few functions performed by one manager	Growth in volume, geographic coverage and through vertical integration to Stage 2
2	Multi-departmental enterprise with specialized managerial departments based upon function	Diversification to Stage 3.
3	Multi-divisional enterprise with divisions based on product-market relationships.	Resource allocation

Source: Adapted from Scott, Bruce R., Stages of Corporate Development - Part I, Unpublished Paper, Graduate School of Business Administration, Harvard Univ. Boston, 1971, ICH 9-371-294, Page 4.

Scott has been able to describe each of the three stages in terms of nine distinctive characteristics.

"Eight of which describe actual characteristics of the way the firm is managed, while the ninth describes the scope of strategic choice which characterizes the strategic framework of the respective stages of development. The first two characteristics denote critical aspects of the relationship between the firm and its environment, while the next six denote important aspects of the part-whole relationships within the firm."⁸⁵

Each of the stages, with the relevant characteristics are presented in Tables 2-5, 2-6 and 2-7, for stages 1, 2 and 3 respectively. It will be useful, to follow the development of the firm through the stages of development to facilitate the development of performance and risk hypotheses developed later in the study.

Stage 1

Almost all successful firms start off as the result of some entrepreneur's "vision" or "dream". These firms, and their less successful counterparts begin operations as a "one man show". The owner, is typically also the general manager and thus he maintains both ownership and control. The organisation of the firm is simple and reflects the owner's close control over operations. See Figure 2-10.

Table 2-5

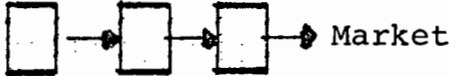
Scott's Classification System: Stage 1

Co. Characteristics	Stage 1 Organizational Development
1. Product line	1. Single product or single line
2. Distribution	2. One channel or set of channels
3. Organization structure	3. Little or no formal structure - "one man show"
4. Product-service transactions	4. N/A
5. R&D	5. Not institutionalized-oriented by owner-manager.
6. Performance measurement	6. By personal contact and subjective criteria
7. Rewards	7. Unsystematic and often paternalistic
8. Control System	8. Personal control of both strategic and operating decisions
9. Strategic choices	9. Needs of owner vs. needs of firm

Source: Scott, Bruce R., "Stages of Corporate Development - Part I", Unpublished Paper, Graduate School of Business Administration, Harvard University, Boston 1971, page 7.

Table 2-6


Scott's Classification System: Stage II

Co. Characteristics	Stage II Organizational Development
1. Product line	1. Single product line
2. Distribution	2. One set of channels
3. Organization structure	3. Specialization based on function
4. Product-service transactions	4. Integrated pattern of transactions
5. R&D	 <pre> graph LR A[] --> B[] B --> C[] C --> Market </pre>
6. Performance measurement	6. Increasingly impersonal using technical and/or cost criteria
7. Rewards	7. Increasingly systematic with emphasis on stability and service
8. Control system	8. Personal control of strategic decisions, with increasing delegation of operating decisions based on control by decision rules (policies)
9. Strategic choices	9. -Degree of integration -Market share objective -Breadth of product line

Source: Scott, Bruce R., "Stages of Corporate Development", Unpublished Paper, Graduate School of Business Administration, Harvard University, Boston 1971, page 7.

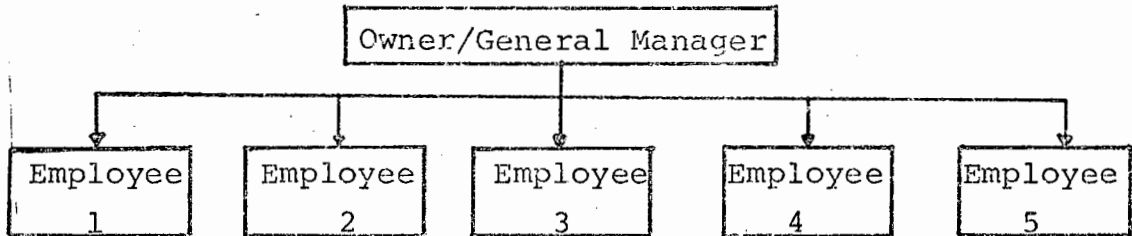
Table 2-7

Scott's Classification System: Stage III

Co. Characteristics	Stage III Organizational Development
1. Product line	1. Multiple product lines
2. Distribution	2. Multiple channels
3. Organization structure	3. Specialization based on product-market relationships
4. Product-service	4. Not integrated
	 <pre> graph TD A[A] --> Markets[Markets] B[B] --> Markets C[C] --> Markets </pre>
5. R&D	5. Institutionalized search for <u>new</u> products as well as for improvements
6. Performance measurement	6. Increasingly impersonal using <u>market</u> criteria (return on investment and market share)
7. Rewards	7. Increasingly systematic with variability related to performance
8. Control system	8. Delegation of product-market decisions within existing business, with indirect control based on analysis of "results."
9. Strategic choices	9. -Entry and Exit from Industries -Allocation of resources by industry -Rate of growth

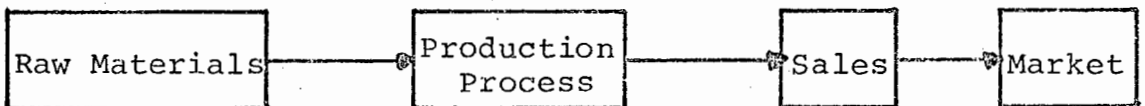
Source: Scott, Bruce R., "Stages of Corporate Development", Unpublished Paper, Graduate School of Business Administration, Harvard University, Boston, 1971, page 7.

Figure 2-10

Typical Organisational Structure of a Stage 1 Firm

The production-marketing system within the Stage 1 firm also tends to be simple. Figure 2-11 represents such a system.

Figure 2-11

Typical Production-Marketing System for a Stage 1 Firm

The problems of a Stage 1 firm are well known and due to the limited resources, limited skills, emphasis on sales and operations and vulnerability to changes dictated by suppliers, customers and the economic environment, management often tends to be very short term oriented and the entrepreneur is often swamped by detail due to his inability, and often unwillingness to delegate.

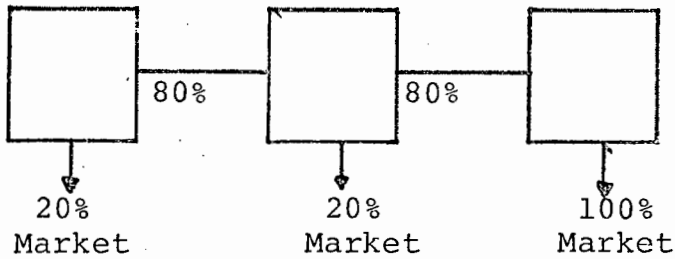
Stage II

It would seem that, once the firm has managed what could be termed the "survival" stage, a critical strategic decision is taken. MacArthur and Scott identified two basic types of product-market strategies. The first strategy leads to an integrated undertaking. Such a strategy consists of a "closed system" which would require central coordination by functional specialists. This strategy is described as follows:

"The first type involves an integrated sequence of operations where the aim is to relate the sequence of operations so as to facilitate the flow of the product or service from one operation to the next."⁸⁶

The refining of oil and its distribution is an example of such a sequence. Figure 2-12 illustrates the sequence.

Figure 2-13

Product-Market Flow in a Stage II Firm

Stage II firms often attempt to break the firm into meaningful profit and performance centers or to use the branch manager concept of management. But despite these attempts, the firm remains built around a single business - steel, oil, beverages or banking for example. Stage II firms are less dependent on external factors for their survival than Stage I firms.

Stage III

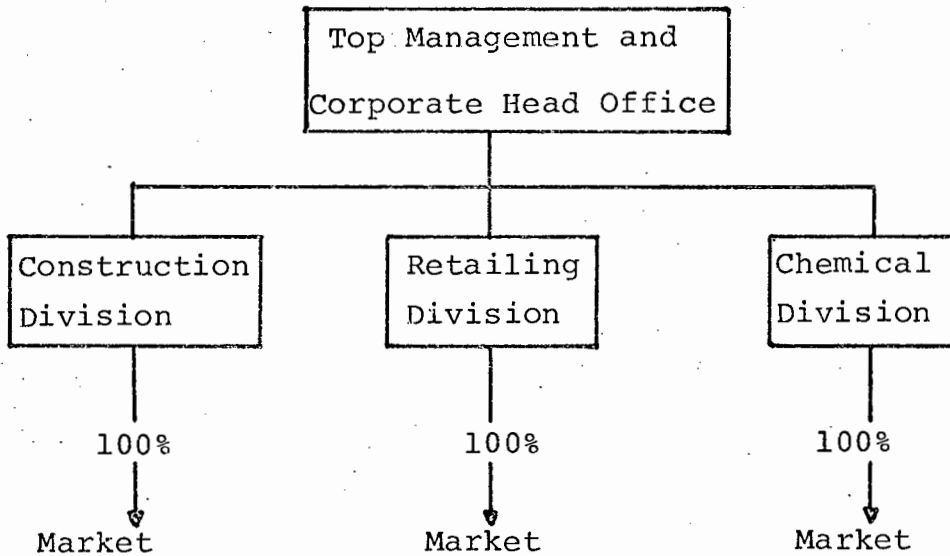
The second strategy which could be adopted by Stage I firms, as identified by MacArthur and Scott, is that of the diversified operation.⁸⁹ In this case the firm is separated into different divisions, each of which serves a different product-market and which operates largely independently of the other divisions. These divisions thus operate as an "open system" and are described thus:

In the diversified undertaking, on the other hand, the divisions are designed to stand on their own in their respective markets. Hence there is no comparable product flow to relate the divisions. ...strategic choice, far from aiming to relate to the division, aims for selective use of resources in those divisions which have the highest expected economic return.... Thus, each division operates approximately as an open system, transacting business with its environment more than with other divisions of the company; and the parent organisation treats the division as members of a loose confederation rather than as indispensable parts of an integrated whole."⁹⁰

This strategic option is illustrated in Figure 2-14.

Figure 2-14

Product Flow in a Diversified Firm



The distinguishing feature of this stage is that the corporate head office appears to "play the portfolio game" where the cash flow from cash generating divisions (or cash-cows) are reinvested in those divisions where returns are expected to be the highest. Those divisions which are considered unsatisfactory are liquidated or disposed of.

The Stage III firm is a formidable enterprise. Certain of these firms are larger than many countries. The divisions are often highly integrated Stage II firms on their own and are managed by specialized and highly skilled functional managers. The diversified nature of their operations tends to make them less susceptible to cyclical swings in any single industry and their cash flow patterns enable them to invest in business areas at a scale that State I and Stage II firms would often be unable to match.

Study of the nine characteristics of the three stages as given in Tables 2-5, 2-6 and 2-7, will suggest and highlight the key differences in strategy that the three stages signify. These strategic differences are very important and some emphasis on these issues seems appropriate.

The resource allocation problem, which is regarded by Bower as so crucial, is very different between Stage II and Stage II firms.⁹¹ In the Stage II firm the emphasis

must be on achieving and maintaining a balance between the different production stages of the integrated process. To return to the integrated oil firm illustration in Figure 2-12, it will serve little purpose to expand distribution and marketing efforts if refining is unable to produce the products in the required quantities. Similarly, an expansion of the transportation facility would result in unused capacity if the refining stage were unable to process the increased crude oil being delivered or if the market were unable to absorb the increased production. The objective is thus one of "balance" between stages yet in many cases, marginal increases in capacity at the different production stages may be difficult, if not impossible to achieve. Economy of scale factors often demand that capacity be added in large amounts - there is no such thing as a "small" oil refinery today. Thus demands for expansion at different stages of the production process tend to be "lumpy" and result in financing as well as capacity and production problems. The Stage II firm can however, obtain significant economies of scale by specializing in a production process and the integrated nature of the process.

A further major distinctive characteristic between these two stages is that of organisational structure. Scott's model states that Stage III firms will be multidivisional based on product-market relationships.

Wrigley's research has shown that this is true for United States firms.⁹² His analysis of a sample drawn from the "Fortune 500" showed that the vast majority of these firms had already reached Stage III of Scott's model. Wrigley's findings, showed that of the 80 firms which were diversified according to his classification system (which will be discussed in depth in a later chapter), 86 percent were operating using the divisionalized structure.⁹³

Thain has developed an extremely detailed breakdowns of the key emphases of general management, the key emphases in the management process, the general emphases in business functions and the major internal and external blocks to transition from each stage to the next.⁹⁴

2.5.3 The Wrigley Classification Scheme

As stated above, Wrigley, in his 1967 study of the "Fortune 500" which was built on both Chandler's and MacArthur's and Scott's study, found that the vast majority of these firms had already reached Stage III of Scott's model.⁹⁵ This led him to examine the population in more detail in order to separate out any additional meaningful distinctions. His studies showed that various definitions of diversification used by previous researchers

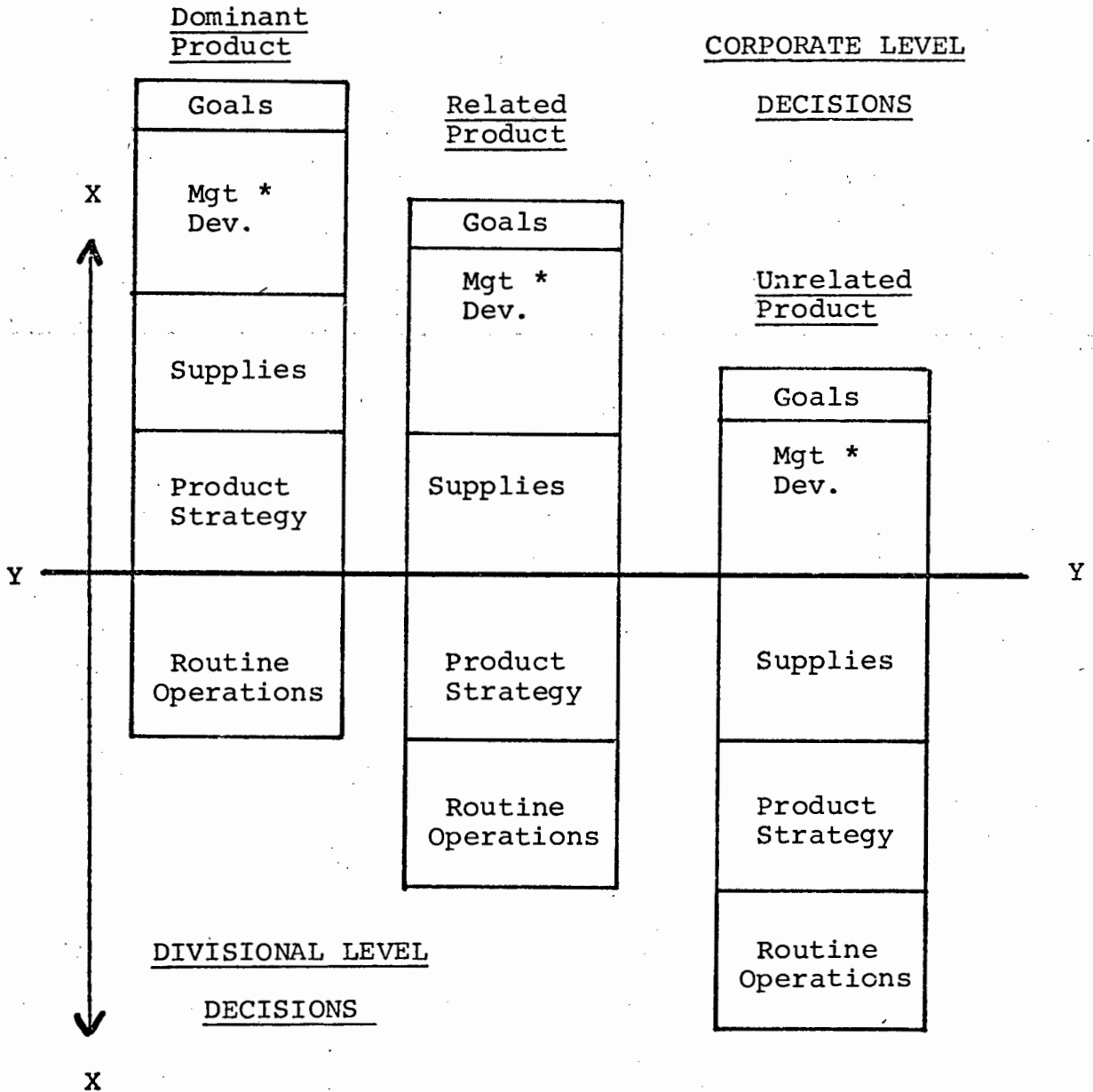
were not meaningful to the management of the enterprise. Flowing from his efforts to produce a more meaningful definition he developed a new concept which he termed "the core skills" which he defined as the critical skills required by the firm to enable it to compete within a given or chosen product-market area.⁹⁶ Those companies that adopted a strategy of diversification into areas related to their "core skill" were termed "related" while those firms which diversified into areas which were unrelated to their "core skills" were termed "unrelated".⁹⁷ These concepts proved to be very powerful as Wrigley found these two categories of firms exhibited differing managerial characteristics. Wrigley's study also revealed another category of firm which had adopted a more limited strategy of diversification and which he determined empirically to be 30 percent of total corporate sales. He states:

"At one stage in the research, a serious attempt was made to discover whether the basis of a diversification system could be the proportion of the "main" product in the total output. If this were successful it would have led to an ordered set of magnitudes of the kind (in percent): 100; 90; 80, 70; 60; 50; 40; 30. However, the attempt met with a particular phenomenon among firms in the sample. While there were some 14 firms in the category 80-100 percent, few firms were in the category 60-80 percent. It seemed that in designing a strategy for expansion, businessmen did not adopt which might be called "half diversification"; they tended either to diversify by a small amount in relation to total output or to go the whole way."⁹⁸

Those firms which had diversified to the extent of less than 30 percent of sales, Wrigley called "dominant" product firms. These firms possessed the distinguishing feature that one major product line produced over 70 percent of corporate sales. Again, Wrigley found that this group also exhibited different managerial characteristics to both the "related" and "unrelated" groups of firms. Wrigley demonstrated these significant and managerial characteristics of these three types of multi-product divisional structures and the results are given in Table 2- 8. This Table shows that the degree of autonomy of the divisions varied according to the nature and degree of product-market diversification.⁹⁹ Wrigley's classification scheme is analyzed in further depth in the following chapter where diversification patterns and motives are developed.

Table 2- 8

Wrigley's Findings Regarding Divisional Autonomy
and Diversification



X = Amount of divisional autonomy (or corporate/divisional scope).

Y = Amount of diversification (or order of diversification categories).

* = Management Development.

2.6 Summary

The preceding sections have reviewed the literature pertaining to the development of the firm over time. The dangers of the trend toward increased concentration of corporate power as predicted by many writers does not appear to be occurring as rapidly as expected and indeed, research and observation suggests that this trend is not as inexorable nor as serious as feared. Large firms are continually being challenged by smaller, more flexible and more highly motivated rivals. The theorists in the field of strategy formulation and implementation appear to reach the same conclusion in that strategy appears to result from both "conscious" and "evolving" activity within the firm.

The firm is seen to evolve over time and in terms of its internal sophistication. Planning, control and reward systems are seen to develop as the firm's strategy develops in response to changing internal and external environments.

This Chapter has provided the conceptual framework which will form the basis of the analysis and discussion of the fundamental growth strategies which firms employ to achieve their goals. Despite the simplified "stages of development" system proposed by Scott, each of those stages contains important sub-categories. Diversification and growth are achieved by the adoption of very different strategies. The following chapters will identify and introduce and discuss the diversification strategies that have proved to be valuable in the study of corporate strategy and performance.

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3. CORPORATE DIVERSIFICATION: CONCEPTS, DEFINITIONS AND THEORY

3.1 Introduction

This chapter will build on the framework established in Chapter which was based on the theory of corporate development and the manner in which firms adapt to their environment. This chapter will use the writing of Chandler and Scott discussed in the previous chapter as the foundation from which the study of corporate diversification and its impact on corporate performance and risk will be based.

3.2 Concepts and Definitions

3.2.1. Concepts

Firms have always been diversified in one way or another. Stigler supports this statement when he states:

"There never was a business with only one productive process and one final product; there never will be. A firm that merely bought the same commodity would find that it was engaged in a host of different productive processes....A firm that appears to make only "one" product almost always makes this product in a variety of qualities, with different sizes of order, speeds of delivery, period of payment....Diversification and integration in the strictest sense are universal."¹

Contrary to popular belief, diversification in the corporate sense has not been confined to the last two decades. Gort quotes the example of the firm Jakob Fugger II which was engaged in such diverse activities as mining, real estate, banking and the spice trades as early as the sixteenth century.² Lynch however, has distinguished between

"diversification" and "the acquisitive conglomerate". He sketches the development process as follows:

"The multifirm horizontal consolidation dominated the industrial scene at the turn of the century; large scale vertical integration, particularly in the basic metals industries, occurred during that same period and again in the 1920s; the multilayered public utility holding company was prevalent in the 1920s and early in 1930s. The phenomenon of the 1950s and 1960s has been the "acquisitive conglomerate", the corporation growing through a continuing program of aggressive, diversified acquisition."³

There appears to be an increasing tendency for firms to diversify not only "horizontally" and "vertically", but also into "related" areas and into many different industries and products that are in no way related to the traditional product market areas of the firm. These have become known as "unrelated" firms or "conglomerates". The term "conglomerate" does imply a mixture of no form of logic and many executives of these firms avoid use of the term and deny that they organisations are "conglomerates".

Roy Ash, President of Litton Industries believes that the term does not "fit" his firm and appeared to perceive his firm as belonging to a unique classification system when he stated:

"I am not sure that the company fits into any of the usual classifications. Our own concept is that we are a technological company - I know that isn't sufficiently descriptive for most people - and that our business is to take the many different technologies of today and find ways of using them to develop commercially useful products.⁴ So we are a multi-industry company."

Royal Little, regarded by many as the founding father of the conglomerate movement and who changed Textron's charter to enable the firm to go into any type of business as early as 1952, maintains that - "I dislike the conglomerate label - unrelated diversification is more descriptive."⁵ Consequently, these firms are referred to by a variety of names - "diversified", "multi-market", "multi-industry", and "free form" companies.

3.2.2. Definitions

This apparent confusion requires definition of the terminology. The term "diversification" itself is subject to differing interpretations by a single individual. In an historical review of the role of the chief executive at General Electric Company, James P. Baughman has noted that Ralph Cordiner used the term in at least six different senses. These were "developmental (Research and Development) "diversification", "functional diversification", "product diversification", "customer diversification", "geographic (international) diversification", and "diversification of the means of financing."⁶ In other words, a change in any of the strategies above could be regarded as diversification. Diversification may also refer to many activities in the firm. In Cordiner terms the word refers to research, managerial functions, products, customers, geographic areas and financial activities. Thus it may

relate to either the firm's functions, production facilities and processes, its markets or its products. An examination of the literature suggests that the theory can be divided into two broad groups:

1. That which regards diversification as an expansion of the products produced; and
2. That which regards diversification as an expansion of the products sold.

Obviously, these two classes are related but from a managerial point of view, it is possible to distinguish between the two groups on the basis of a production versus marketing/sales orientation. The first approach is of an extremely specialized firm and conforms to the traditional economist's view of the firm. For example, the noted economist Stigler defines diversification as more than one activity, such that any single activity could be regarded as the business of a more specialized firm:

"...We view diversification broadly as the encompassing within a single company of two or more activities each of which constitute the sole activity of more specialized companies...."⁷

Penrose adopts a similar view:

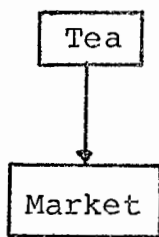
"For the purpose of analyzing the process of diversification we can say that a firm diversifies its productive activities whenever, without entirely abandoning its old line of products, it embarks upon the production of new products, including intermediate products, which are sufficiently different from the other products it produces to imply some significant differences in the firm's production or distribution programmes."⁸

If this view of diversification is accepted it would mean that an increase in the variety of products sold would mean diversification as illustrated in Figure 3-1.

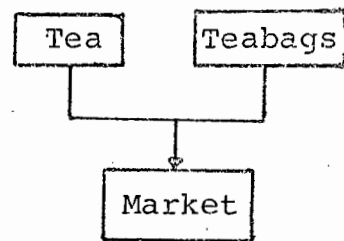
Figure 3-1

Non-Diversified and Diversified Operations as Defined by Varieties of Products Sold

Non-Diversified



Diversified

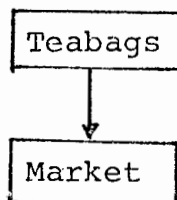


This definition of diversification would also include the addition of products as the result of an increase in functions or processes. This concept is illustrated by Figure 3-2 below.

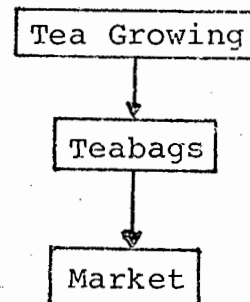
Figure 3-2

Non-Diversified and Diversified Operations as Defined by Increased Functions

Non-Diversified



Diversified



This view of diversification as being measured by the number of different products produced is shared by certain business executives. Brown, a Vice President of General Motors has stated:

"By diversified, I mean where the variety of products manufactured by a varied number of machines come into the final assembly operations as constituent parts of the finished product that might be turned out by the plant."⁹

Brown made his statement in 1927, when the vast proportion of General Motors production lay in motor vehicles. Although the firm still sold "one product" (the motor car), the management regarded the firm as diversified due to their acceptance of the definition of a diversified firm as a firm which operated different production processes. This is substantially different from the alternative view which measures diversification according to the products sold and thus the markets served by the firm.

This more common usage of the term occurs when referring to product-market diversification. This is in agreement with Gort's definition:

"Diversification may be defined as an increase in the heterogeneity of markets served by an individual firm. Heterogeneity of production is distinct from diversification if it involves minor differences of essentially the same product, or if it takes the form of vertical integration."¹⁰

This definition is deceptively simple. Firstly, it requires definition of a "product" - but this in turn requires definition of the industry since the identical

product may be used in different markets for different purposes. This being so, it is more than likely that the seller will have to use a different marketing mix and thus a different marketing strategy to reach each market.

Obviously, a different marketing mix means that the product is "different" when viewed from the point of view of the marketer or the consumer. Almost everyone has an intuitive notion of what an industry is - yet this is unsatisfactory from an analytical point of view.

From a theoretical point of view, two criteria can be used to establish the heterogeneity of markets or industries. These are:

3.2.2.1. Cross-elasticity of demand and

3.2.2.2. Mobility (or immobility) of productive resources.¹¹

Clearly if the cross-elasticity between products is high, then a rise in price of one, will cause demand for the other to rise. In other words, the higher the cross-elasticity of demand, the greater the substitutability between the products and thus they can be said to be part of the same market. The converse is also true - if the products are not good substitutes, they are not competing in the same market. This situation would be indicated by low cross-elasticities.

Similarly, if productive resources are able to be shifted rapidly and easily from one product to another, then these products can be viewed as being in the same

industry (or market) from the producers viewpoint. This is true even if the consumer sees them as being separate and different. This concept is linked to that of cross-elasticity of demand in that if productive resources in a production capacity sense are readily transferable, then changes in profitability and hence return from the producers viewpoint, will result in production shifts, causing prices to rise in the product class where production has ceased. This will be followed by a drop in price for the product under production due to increased output. Thus as Gort says, "The phenomenon of interdependence of prices, output, and earnings associated with high cross elasticities of demand tend to be present also where a high degree of mobility of resources exist."¹² Gort summarizes the theory as follows:

"Diversification may be defined as an increase in the heterogeneity of output from the point of view of the number of markets served by that output. Two products may be specified as belonging to separate markets if their cross-elasticities of demand are low and if, in the short run, the necessary resources employed in the production and distribution of one cannot be shifted to the other."¹³

However, as is almost inevitable in economic analysis, certain problems in this definition arise. The measurement of cross-elasticities of demand is extremely difficult and even if it were possible to obtain accurate data, it would still be necessary to stipulate at what point of cross-elasticity products could be regarded as belonging to

separate markets. The measurement of, and availability of data, and the problems associated with defining limits also exists for the resource-mobility approach. An example will serve to illustrate the extent of the problem. A tea packaging firm is likely to have very little impact on the strategy of a construction firm, but a steel producer may have an influence on an aluminum producer. This is due to the fact that steel and aluminum compete as substitutes in certain markets and the production facilities are probably transferable up to a point. The question is whether steel and aluminum are in different industries or not? Also, since "Thatch" roofing also competes with steel and aluminum roofing in certain segments of the construction industry, should the "Thatch craftsman" be regarded as a competitor in the steel and aluminum industry?

The problems of industry definition have been discussed in considerable depth in the literature relating to industry concentration and yet the issue is far from resolved. From a managerial viewpoint, definition of the industry is also subject to debate. Certain writers, notably Levitt, maintain that a wide, encompassing view is required.¹⁴ Tilles on the other hand, maintains that a much narrower view is essential and makes a strong case for a more "focussed" view of the industry.¹⁵

Another approach to the determination of whether a firm can be described as diversified or not is to adopt a

"product" rather than a "market" or "industry" view.

However, the term of a "product" is also subject to problems of definition. What is a "product"? Salter puts the dilemma neatly:

"Is a product defined by the raw materials in it? If so, a transistor and a vacuum tube are two different products although they serve similar functions. Is a product defined by the type of customer to which it is sold? If so, dresses for women and dresses for "Misses" are different products. Is a product defined by the manufacturing process? If so, a handcrafted pot and a machine-made pot are two different products, or are they?"¹⁶

In the most definitive study of economic performance and its relationship to product-count measures of diversification, Gort has found almost no correlation between diversification in product count terms and growth and profitability. Gort has stated:

"To ascertain the association between company growth and diversification, two tests were employed. In the first, growth was measured by the ratio of total assets in 1954 to total assets in 1939. This ratio was then correlated with the composite D3 diversification measure. For the 109 companies, the coefficient of rank correlation (Spearman's) was only 0.16. In the second test, the 111 companies were grouped by deciles on the basis of growth and total assets for the 1929-1939 and 1939-1954 periods. The frequency of product additions in the various deciles in the two periods was then examined. Companies associated with higher growth deciles did not reveal greater frequencies of product additions in 1929-1939 than those in lower deciles.

For the 1939-1954 period, there is indication of positive relation between growth and frequency of additions, at least starting in the third decile. The decline in frequencies from the first to the third decile suggests, though inconclusively, a U-shaped curve."¹⁷

In discussing his findings in respect of rates of return, Gort states:

"Using data for 110 companies, average net income after taxes for the period 1947-1954 was expressed as a ratio to average net worth for the same interval of time.... The coefficient of rank correlation (Spearman's) for the indicated measure of rate of return and D_3 was $-.04$."¹⁸

In another, more recent study, Berry has studied 460 of the largest firms in the United States. He finds that:

"Probably more significant than this increase in diversification, particularly as an indicator of the future structure of the industry, is the much larger increase in the number of products reported by these firms between 1960 and 1965 - probably, because the evidence is partially contradictory. In terms of growth related activity, entry serves as a slightly better explanatory variable for corporate growth than does increasing diversification.... Nevertheless, there is evidence during this period that increasing diversification was related to the growth of large firms. But there is MUCH stronger evidence, in a similar setting, that corporate earnings were a more important factor in relative growth within this population of the largest industrial corporations."¹⁹ (Emphasis added)

These studies, based largely on product-count measures of diversification show almost no relationship between diversification and performance, yet certainly in the United

States, firms have shown considerable interest in this form of corporate development. The fact that these studies are unable to explain the tendency suggests a weakness in either methodology or perspective. The research is either analysing variables which are not adequate measures of the real, or managerial benefits provided by diversification or the classification system and definitions of diversification are based on incorrect or methodologically convenient methods and do not reflect the strategic, classification system, more likely to be used by managers.

Such a scheme, which is more meaningful from a managerial point of view has been provided by Wrigley.²⁰ This framework, introduced in the previous chapter, was based on his concept of "core skills" which he described as the skills required by the firm to compete in a particular product-market area. Those firms that adopted a strategy of diversification in which new product-areas were related to the "core skill" of the firm were termed "related" while those that entered new product areas which bore no relation to "core skills" were termed "unrelated". Those firms, which had adopted a strategy of limited diversification in that the distinguishing feature of these firms was that the new product area did not contribute more than 30 percent of sales, were termed "dominant product" firms. The definitions of the four major categories are as follows:

Single Product (S)

:Firms which grow by the expansion of one main product line such that at least 95 percent of sales lie within this single product area.

Dominant Product (D)

:Firms which grow primarily by the expansion of one main product line, but which in addition, have added secondary product lines making up 30 percent, or less, of the total sales volume. These secondary activities may be related or unrelated to the primary activity.

Related Product (R)

:Firms which grow by entry into related markets, by the use of related technology, by related activities, or some combination of these, such that no one product line accounts for 70 percent of total corporate sales.

Unrelated Product (U)

:Firms which grow by expansion into new markets, and new

technologies, unrelated to the original product-market scope, such that no one product line accounts for 50 percent of the total corporate sales.

Wrigley provided a classification system in which the different categories demonstrated differing managerial characteristics and which appeared to be meaningful from a managerial point of view. These categories have provided the basis for the classification system used in the present study.

The next section examines the trends in diversification in the United States, the United Kingdom, France, Italy and West Germany.

3.3 The Trend Toward Corporate Diversification

The United States

The pattern in the United States appears to be cyclical and to follow the stock market bull and bear markets. The possible reasons for the tendency to follow the stock market appears to be closely related to the fact that high share prices and the correspondingly high price-earnings ratios enabled many firms to increase their earnings-per-share by purchasing firms with lower price-earnings ratios. The number of acquisitions in the United States during the period 1954 to 1976 is given in Table 3-1.

Table 3-1
Corporate Acquisitions in the United States: 1954-1976

	<u>Number of Acquisitions</u>	<u>Number Over \$10 Million</u>
1954-1955	<u>±</u> 535 per year	<u>±</u> 50 per year
1967-1969	<u>±</u> 2346 per year	<u>±</u> 150 per year
1972	2840	60
1973	2354	64
1974	1460	62
1975	1048	59
1976	1081 (preliminary)	77

Source: Bureau of Economics, Federal Trade Commission, Statistical Report on Mergers and Acquisitions, November 1979; and Markham, Jesse, W., Conglomerate Enterprise and Public Policy, Division of Research, Graduate School of Business, Harvard University, Boston, 1973.

The United States experience also seems to confirm Berg's findings that "for large firms - the conventional route to entry or diversification is the corporate acquisition or merger".²¹ Table 3-2 shows that large firms are by far the most active acquirers in that the largest 200 companies have consistently accounted for approximately 35 percent of large acquisitions and over 50 percent of acquired assets.

Table 3-2

Large Acquisitions by 200 Largest Firms in
The United States*

	Percentage of No. of Acquisitions	Percentage of Assets Acquired
1954	37.8	63.7
1967	37.7	63.6
1969	34.8	54.8
1972	35.0	39.2
1973	39.0	56.1
1974	37.1	42.0
1975	32.2	52.4
1976 (preliminary)	20.8	31.9

* Large acquisitions are defined as those acquisitions where the acquired assets exceed 10 million dollars.

Source: Bureau of Economics, Federal Trade Commission,
Statistical Report on Mergers and Acquisitions,
November 1977.

Table 3-3 provides an analysis of assets acquired in large mergers (again defined as those mergers which involved assets exceeding 10 million dollars), as a percentage of total new investment. The cyclical nature of the acquisition pattern is readily discernable and the hyper-activity during the "bull" market of the late 1960s is also emphasized.

Table 3-3

Comparison of Acquired Assets to New Investments for
Large Manufacturing and Mining Companies

Year	New Investment* (\$ Billions)	Acquired Assets** (\$ Billions)	Acquired Assets as Percentage of New Investment
1948-1953	10.6 per yr.	0.3 per yr.	2.8
1954-1966	17.7 per yr.	2.4 per yr.	13.7
1967-1969	31.2	11.6	37.2
1970	33.8	6.6	19.5
1971	32.2	3.1	9.8
1972	33.8	2.7	7.9
1973	40.8	3.6	8.7
1974	49.2	5.1	10.4
1975	51.7	5.5	10.7
1976 (prelim.)	56.9	6.6	11.7

* Defined as total expenditures for new plants and equipment by manufacturing and mining firms.

** Acquired firms with assets of \$10 million or more.

Source: Bureau for Economics, Federal Trade Commission, Statistical Report for Mergers and Acquisitions, November 1977.

The above tables do not distinguish between acquisitions which were non-diversification and those which were diversification oriented by nature. Table 3-4 shows this breakdown as defined by the Federal Trade Commission in the United States.

Table 3-4

Large Diversifying Acquisitions: Percentage of
Total Assets Acquired*

Year	FTC Broad Definition+ Percentage of Assets	FTC Narrow Definition++ Percentage of Assets
1952-1955	52.0	3.6
1956-1959	Not available	14.0
1961-1970	78.5	30.4
1971	79.2	45.3
1972	59.2	16.8
1973	65.3	36.8
1974	68.2	38.0
1975	94.6	68.3
1976 (prelim.)	87.2	56.9

* Defined as acquired firms with assets exceeding \$10 million or more.

+ The broad definition defines such an acquisition which extends operations beyond the present product or geographical market.

++ Defined as an acquisition where two firms are functionally unrelated in marketing or production.

Sources: Bureau of Economics, Federal Trade Commission, Statistical Report on Mergers and Acquisitions, November 1977; and Markham, Jesse W., Conglomerate Enterprise and Public Policy, Division of Research, Graduate School of Business, Harvard University, Boston, 1973.

Clearly, as the discussion relating to definitional problems above suggests, this evidence is likely to contain certain weaknesses but nevertheless, emphasizes the overall importance of diversification activity. For example, in 1975, over 94 percent of acquisition activity could be defined as diversification oriented whilst the figure for 1976, although preliminary, suggest that almost 90 percent could be regarded in a similar light. These findings are based on the "broad definition" of diversification which includes all acquisitions beyond present product or geographic markets. The "narrow definition" which requires that the acquisition be unrelated in a marketing or production sense is probably more meaningful. The figures are no less dramatic in that there is a definite increase in diversification activity apart from the sudden decline in activity for 1972 and that in recent years, more than half the acquisition activity has been "unrelated" in nature.

The analysis of the diversification pattern of large firms has tended to focus on the "Fortune 500". Wrigley's analysis was the first to examine the breakdown from a more managerially based viewpoint. As stated earlier, his analysis of a sample of 100 firms from the "Fortune 500" indicated that a large proportion of these firms had already reached Stage III of Scott's model.

Wrigley's findings, based on his breakdown into four major categories according to the proportion of total sales

attributable to a single product area, are given in Table 3-5.

Table 3-5

Composition of Fortune 500 Using
Wrigley's Classification System - 1967

<u>Strategic Category</u>	<u>Percentage of Firms in Category</u>
Single Product	6
Dominant Product	14
Related Product	60
Unrelated Product	20

Source: Wrigley, Leonard, "Divisional Autonomy and Diversification", Unpublished Doctoral Dissertation, Graduate School of Business, Harvard University, Boston, 1970.

However, Wrigley's sample is cross-sectional and does not indicate the trend, if any, in the move toward diversification. In a study covering the thirty year period 1949-1969, Rumelt, using the same classification system developed by Wrigley, produced evidence of a steady trend toward related and unrelated forms of diversification.²² His findings are presented in Table 3-6.

Table 3-6

Composition of Fortune 500 Firms for 1949, 1959 and 1969

<u>Strategic Category</u>	<u>Estimated Percentage of Firms in Each Category</u>		
	<u>1949</u>	<u>1959</u>	<u>1969</u>
Single Business	34.5	16.2	6.2
Dominant Business	35.4	37.3	29.2
Related Business	26.7	40.0	45.2
Unrelated Business	3.4	6.5	19.4

Source: Rumelt, Richard P., "Strategy, Structure & Economic Performance, Doctoral Dissertation, Graduate School of Business Administration, Harvard Univ., Boston

Rumelt states that:

"It does not require sophisticated analysis to see the most dramatic pattern of change revealed by the data. Between 1949 and 1969, the number of truly diversified corporations more than doubled; the percentage of firms following related or unrelated business strategies of expansion rising from 30 percent to 65 percent in this 20-year period. Clearly, there has been a basic change in the product-market scope of the largest United States corporations. The most striking change in any individual group is the decline in the number of single business firms amongst the largest 500. Comprising more than one-third of the 500 in 1949, by 1969 firms deriving 95 percent or more of their revenues from one business had dropped to 6.2 percent of the total."²³

Commenting on the trend toward increased diversity as evidenced by the increase in the Unrelated Business category, Rumelt maintains:

"Equally noteworthy was the increase in large firms that follow Unrelated Business strategies. In 1949 this group accounted for only 3.4 percent of the 500 largest, but by 1969, one out of every five firms fell into the Unrelated category."²⁴

The United Kingdom

In another important study, based also on the framework established by Wrigley, Channon analysed a sample which he defined as "the largest 100 manufacturing companies by sales volume operating or registered in Great Britain, chosen from the Times 500 list of 1969-1970."²⁵ The results are given in Table 3-7.

Table 3-7

The Composition of Large British Firms
By Strategic Category: 1969-1970

Strategic Category	Percentage of Firms in Each Category
Single Business	6
Dominant Business	34
Related Business	54
Unrelated Business	6

Source: Derived from Channon, Derek F., "The Strategy and Structure of British Enterprise" Doctoral Dissertation, Graduate School of Business, Harvard University, Boston, 1971. Chapter 4-1, pages 5-18.

Channon comments:

"...by 1970, 94 percent of the sample population had diversified to some degree, and some 60 percent of the companies had moved into the related or non-related product classes.... The observations in general tend to support the proposition that there will be an increasing proportion of the population with diversified product-market scope during the period coupled with a decline in the number of single-product firms... The evidence, therefore, suggests that the tendency to diversity has been rapid over the whole period (and that) a strategy of full diversification was less common in earlier periods."²⁶

France

Dyas, following Wrigley and Channon has analysed the strategic development of French industrial enterprise

over the period 1950, 1960 and 1970 and classifying using Wrigley's methodology produced the results given in Table 3-8.²⁷

Table 3-8

The Composition of Large French Firms
By Strategic Category: 1950-1970

Strategic Category	Percentage of Firms in Each Category		
	1950	1960	1970
Single Business	42	28	16
Dominant Business	21	27	32
Related Business	33	40	42
Unrelated Business	4	5	10

Source: Dyas, Gareth P., "The Structure of French Industrial Enterprise", unpublished Doctoral Dissertation, Graduate School of Business, Harvard University, Boston, 1972. p. 162.

The sample observed was the largest 100 manufacturing firms in France ranked on sales volume.

The trend in French industry toward increasing diversity is obvious. Analysis of the Single Business category reveals a steady decline with corresponding transitions from Dominant to the Related and Unrelated categories.

Italy

Pavan, using the Wrigley strategy classification scheme, also analysed the 100 largest manufacturing firms in Italy.²⁸ The companies were ranked by sales volume and had to be operating in Italy. Pavan ranked the firms on sales volume to enable comparison with Wrigley's findings which were also based on a ranking in terms of sales volume.²⁹ Pavan's research differed from that of Wrigley in that Wrigley examined a sample of firms at a particular point in time while Pavan classified the firms in his sample population over the post-war period. Since the ranking according to sales was based on the 1969 sales figures, certain firms, due to changes in structure and ownership did not exist or did not qualify for inclusion in the top 100 firms and thus the sample size varies over the period 1950 to 1970. Pavan's findings regarding the trend toward diversity are given in Table 3-9.

Table 3-9

Diversification of Large Italian Firms, 1950-1970

Strategic Category	Percentage of Firms in Each Category		
	1950	1960	1970
Single Business	30	23	10
Dominant Business	24	20	33
Related Business	43	53	52
Unrelated Business	4	3	5
Number of firms in sample	84	94	100

Source: Pavan, Robert J., "The Strategy and Structure of Italian Enterprises." Unpublished Doctoral Dissertation, Graduate School of Business Administration, Harvard University, Boston, 1972, Chapter 4, Page 23.

Pavan comments on his findings as follows

"(The research) indicates that the 1950 population showed a low level of diversification although 70 percent were diversified beyond a single business. More than half the population was composed of single business (no diversification) companies and dominant business (little diversification). Related business companies were the largest category with 43 percent... By 1970 more than half the total population was composed of related and unrelated business companies. Whereas 20 years earlier the single and dominant group were the majority. Now 90 percent of the population had diversified beyond the single business company. The single business category has steadily declined during the period studied."³⁰

West Germany

Adopting a similar approach to Channon, Dyas, and Pavan, Thannheiser analyzed German firms as of 1970.³¹ Thannheiser confined his sample to the 100 largest manufacturing firms in Germany and in order to ensure comparability between his and the parallel studies, companies were ranked by sales volume in 1970. A manufacturing firm was defined as a firm in which at least 50 percent of activities fell into the manufacturing sector. Thannheiser's findings were presented in Table 3-10.

Table 3-10

Diversification of West Germany Industrial Firms 1950-1970

Strategic Category	Percentage of Firms in Each Category		
	1950	1960	1970
Single Business	34	22	22
Dominant Business	26	28	22
Related Business	32	40	38
Unrelated Business	7	9	18

Source: Thannheiser, Heinz T., "Strategy and Structure of German Industrial Enterprise." Unpublished Doctoral Dissertation, Graduate School of Business Administration, Harvard University, Boston, 1972, Chapter 5.

Thannheiser states that:

"(The findings) support the proposition that the proportion of diversified population would increase. In 1950, 66 of the companies fell into one of the diversified business categories; in 1970, there were 78. The number of Single Business companies declined correspondingly from 34 to 22.... In the decade from 1950 to 1960, there was a major shift from the Single Business category. All but two of the presently diversified companies that had been Single Businesses in the 1950/55 period began to diversify in this decade - three became Dominant, six Related and three Unrelated Businesses. In the next decade, from 1960 to 1970, the major move was toward the Unrelated Business category which gained nine companies, mainly from shifts out of the Dominant Business category."³²

3.3.1 Conclusions

The general pattern appears to be unmistakably towards increased product-market diversification. The fact that the management of large firms has pursued a strategy towards increased diversification in a wide variety of countries is significant in itself. These economies have all experienced different rates of economic growth, their governments have adopted different policies over time and yet the response of firms has been to diversify, albeit at different rates. These economies are all significantly different from South Africa in the sense that they can all be classified as developed and mature. South Africa is still a developing economy and it is of interest to examine the response of firms in this economy to determine the extent of diversification and the performance of the firms relative to firms in a more developed environment.

The question, that the evidence toward increasing diversification in product-market terms raises, is;

- Why do these firms diversify?
- What factors could contribute toward this pattern?
- What performance differentials can be expected by firms following a particular strategy of diversification.

The following section of this chapter will explore the reasons for diversification, the possible objectives of such a strategy and will examine the evidence regarding performance as provided by the available literature.

3.4 The Reasons for Diversification

In almost all companies with vigor, certain natural driving forces exist which can generate new feelers and the embryos of new activities and challenges. For some reason, the management decision makers will decide to realign the firms' product-market relationships.

In terms of the "planned conscious strategy" approach suggested by Andrews discussed in Chapter 2, the management of the firm will continually establish and evaluate objectives, monitor the environment, establish opportunities and threats, assess corporate strengths and weaknesses and adapt strategy and tactics to ensure profitability and survival. In the terms of the Cyert and March approach or that of the "instrumentalists", the firm will react to major and minor crises in a spasmodic fashion. In many cases the activity is a natural extension and development of improvements in production processes, sales territories and market demand patterns. On the otherhand the firm may decide to behave in a proactive manner and take advantage of gaps in the environment. Whatever the reason, it appears that many firms operating in diverse industries and markets, in many different countries, have adopted strategies of diversification. In Ansoff's terms certain "trigger" signals have caused firms to react in this fashion and to "enter" new business areas which are either related or unrelated to the existing product-market areas.

3.4.1 Related Diversification

A review of the literature suggests that no single criterion is of much use in defining and determining which business areas are related and which are unrelated. It would seem that if management believes or perceives business areas to be related, then they are related!³³ Thus T.W. Beckett's entry into the canned and powdered fruit juice market can be regarded as related to the tea and coffee or beverage market because the products are related as they both use similar distribution systems. McCarthy-Rodway, the motor car distributors and retailers entry into motorcycles can be viewed as related as both products are means of transportation and are related in terms of selling skills even though the products are marketed to different market segments, and differ in pricing and technology.

Salter maintains that business areas can be considered related "if they either share common functional skills and critical success factors or operate at different stages of the same commercial chain thereby processing complementary skills and resources."³⁴ According to Salter, if one of four characteristics is present, then the business can be regarded as related.

- 3.4.1.1. If it involves businesses serving similar markets and/or using similar distribution systems,
- 3.4.1.2. If the businesses employ similar production technologies,
- 3.4.1.3. If the businesses exploit similar science-based research,

- 3.4.1.4. If the businesses involved do not share the same functional skills or critical success factors as long as they operate at different stages of the same commercial chain.³⁵

Table 3-11 is a summary of the potential benefits of related diversification as seen by Salter.

Table 3-11
Potential Benefits and Requirements for
Successfull Related Diversification

Factor	Benefits and Requirements
Product-market orientation	Diversification into businesses with similar marketing and distribution characteristics, or similar production technologies, or similar science based research activities.
Transferable resources with greatest potential for creating value	Operating and/or functional skills: excess capacity in distribution systems, production facilities, or research operations.
Nature of potential benefits	Increased productivity of corporate resources through operating synergies, improved competitive position accruing from increased size of business, and reduction in long-run operating costs can lead to a reduction in the variability of a company's income stream and/or a larger income stream than that available from simple portfolio diversification
Relative ease of achieving potential benefits	Relatively difficult due to organizational problems associated with intergrating formerly self-sufficient companies into the acquiring company.

Source: Adapted from Salter, Malcolm S., Unpublished manuscript, Graduate School of Business Administration, Harvard University, Boston, 1978.

3.4.2 Unrelated Diversification

Salter's definition of unrelated diversification is "a move into businesses which do not share any of these four characteristics".³⁶ The acquisition of Tiffany's by Avon Products and that of O.K. Bazaars by South African Breweries can be regarded as unrelated diversification. Similarly, the purchase of Ellerines' by Tedalex is an unrelated move by the television manufacturer. Table 3-12 is a summary of possible benefits and requirements for successful unrelated diversification.

Table 3-12
Potential Benefits and Requirements for Successful
Unrelated Diversification

Factor	Benefits and Requirements
Product market orientation	Diversification into product-markets with key success variables unrelated to the key success variables of the acquiring firm's principal business.
Transferable resources with greatest potential for creating value	General management skills; simple financial resources.
Nature of potential benefits	More efficient cash management and allocation of investment capital, reduced cost of debt capital, and growth in profits through cross-subsidization can lead to a larger income stream than that available from simple portfolio diversification.
Relative ease of achieving potential benefits	Relatively easy to achieve capital efficiencies and benefits from cross-subsidization.

Source: Adapted from: Salter, Malcolm S., Unpublished Manuscript, Graduate School of Business Administration, Harvard University, Boston, 1978.

The next section of this chapter provides a brief overview of the "entry process". The factors and characteristics which are believed to furnish the firm with advantages when undertaking diversification are discussed in greater detail in the follow section of this chapter.

3.5 Analysis of the Entry-Decision Process

The theory underlying the decision to enter a new product-market area by the management of a firm must draw heavily on the studies performed in the area of individual structure and industrial economics. This is so because it is an expansion of the considerations relevant to the number of and type of competitors in an industry to the possibilities of new entry and the resulting effect on the structure and behavior patterns of the industry. The theory of industrial economics is also of value in the identification of the major features of an industry that may be perceived as a "diversification trigger". Thus, in the analysis of diversification motives, we should be concerned with factors contributing to both exit and entry.

3.5.1 Definition of Entry

The most quoted definition of entry seems to be that of Bain who defines entry as follows:

"...The establishment of an independent legal entry new to the industry...and the concurrent building or introduction by the new firm of physical production capacity that was not used for production in the industry prior to the establishment of the new firm."³⁷

This definition is too narrow being only concerned with the addition of production capacity by a new firm in the industry to be tantamount to new entry. Clearly a firm can enter an industry by utilizing excess production capacity belonging to an existing firm in the industry.

Brozen recognises this and considers entry "any expansion of capacity, whatever the source."³⁸ Certain other writers have considered wider definitions. For example, Clark considers that the replacement of control may constitute entry:

"It (entry) is generally conceived as the establishment of a new firm, either creating new physical facilities or adapting existing facilities to an industry in which they had previously not been used. It is quite proper to distinguish it from the new business unit, replacing a previous one which does not re-enter the business, and continuing to use the facilities in the same branch of production as before. It is true that if the new firm has fresh ideas and capacities, something new has really been added, which may enlarge and transform the effectiveness of the production unit. However, this is an imponderable and uncertain matter and the bare fact of a new ownership affords no guarantee that it will happen. It is about as likely to happen from a revitalization of an existing management without transfer to a new firm."³⁹

Osborne on the other hand, believes that definition of industry and market entry can be viewed differently:

"Entry into markets is vastly easier than entry into industries. For example, there has been very little recent entry into steel, but I would not like to have to list the numerous entrants into markets formerly served exclusively by steel."⁴⁰

Once again, as in the discussion of the literature in the field of industry definition, the concepts are complicated by different interpretations of the terminology.

3.5.2 The Conditions of Entry

In classical economics, the analysis of the competitive system was regarded as being "perfect". This meant the free entry and exit of firms in a perfectly competitive market which would produce an efficient equilibrating mechanism and which in turn would ensure that excess profits would be eliminated. In the real world these conditions are rarely experienced and each firm will possess different information sets regarding the "attractiveness" and potential available in a particular industry. The potential entrant will decide on the relative attraction of an industry based on:

- 3.5.2.1. The factors it considers important to assist in the managerial decision making process; and
- 3.5.2.2. How these factors are seen to affect the firm's goals and ability.

These factors can be defined as follows:

- barriers to entry
- inducements to enter
- probability of success.

To quote Bain:

"A potentially important set of forces affecting the emergence of monopoly in any industry is found in the variety of basic environmental circumstances which influence the ability and disposition of successive additional sellers to enter the industry."⁴¹

3.5.3 Entry Considerations

3.5.3.1. Profitability

Probably the most important indicator of an attractive or "rich" environment is the profitability of that industry. Porter believes that "rates of return are a thermometer for measuring the intensity of competition."⁴² He also sees four major factors as contributing to the competitive complexion of an industry.⁴³ These are:

3.5.3.1.1. Rivalry Among Firms in The Industry

Firm to firm competition on price, advertising, service, product quality, technical sophistication etc. Price and non-price rivalry either reduce revenues or increase costs, thereby reducing profits.

3.5.3.1.2. Rivalry With Substitute Products

The price, quality and the degree of substitutability if substitute products puts a ceiling on the prices and profits in the industry. (The effect of the introduction of television into South Africa and its effect on the cinema industry is a good example of this effect.)

3.5.3.1.3. Bargaining Power of Buyers and Suppliers

The rivalry of firms in the industry with firms in adjacent stages of production and distribution can affect profitability. Buyers have potential bargaining power to force down prices, and suppliers have potential bargaining power to inflate the costs of purchased inputs or reduce their quality. Thus powerful buyers and suppliers reduce profits in an industry. (The purchasing power of

large supermarket chains such as Pick'n Pay makes this firm a powerful influence over the profitability of many grocery suppliers.)

3.5.3.1.4. Entry of New Competitors and Exit of Existing Competitors

Entry of new firms reduces the sales of existing firms, forces down prices, or inflates costs, all reducing profits in the industry. Exit has the opposite effect.

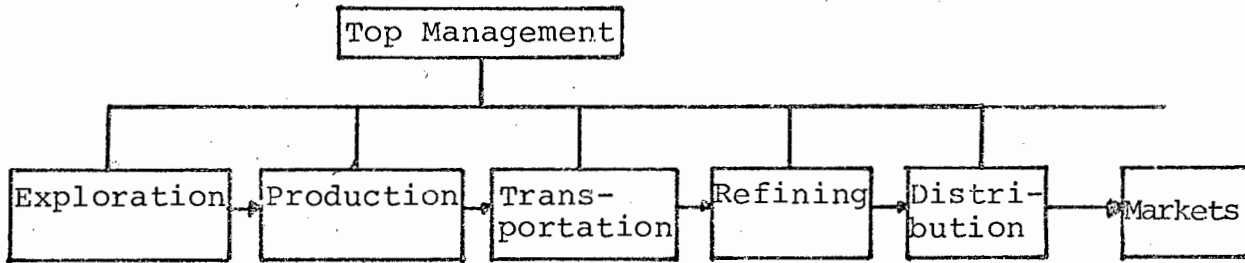
Profitability is thus determined by:

- The intensity of rivalry in the industry,
- The intensity of rivalry with substitutable profits produced by closely related industries,
- The relative bargaining power of suppliers and customers,
- The barriers to entry and exit.

These forces are illustrated in Figure 3-3.

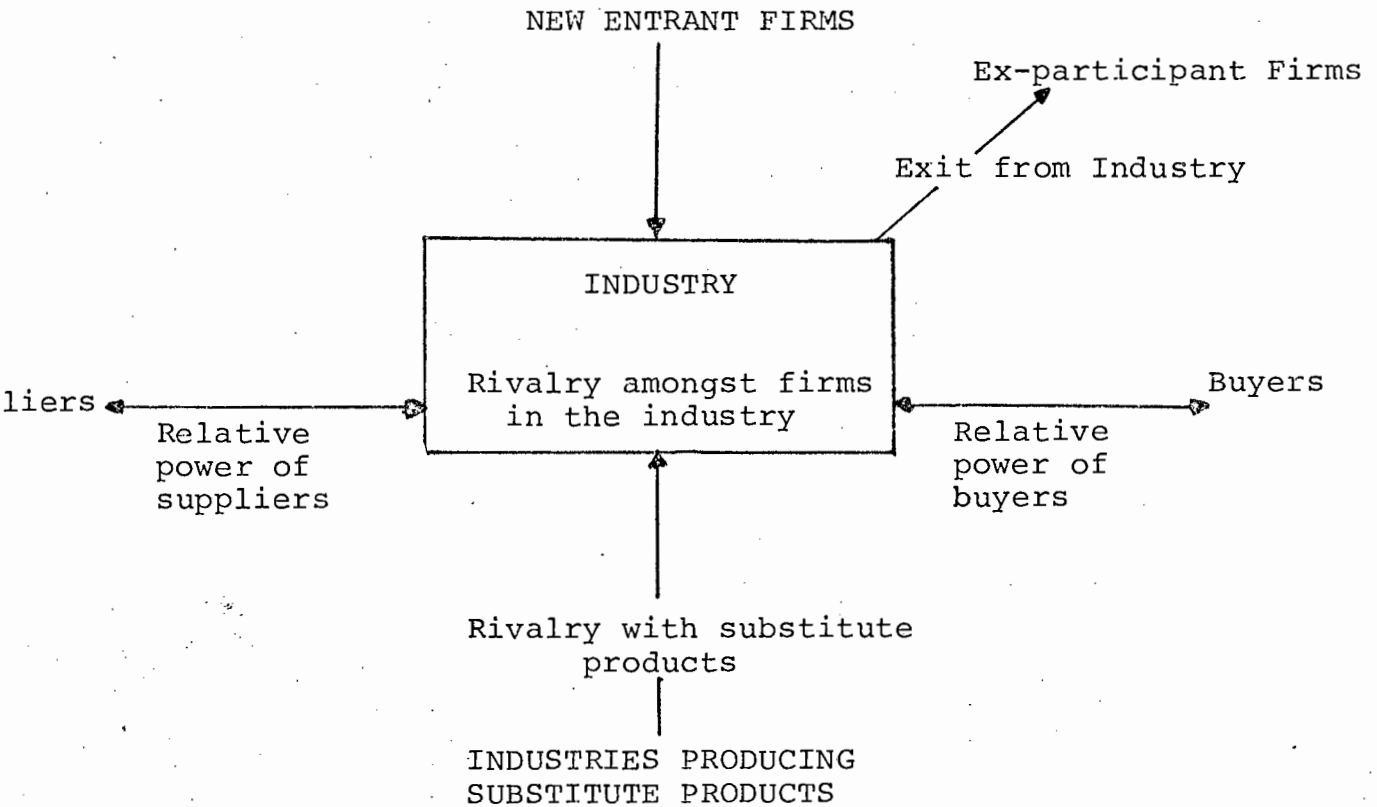
The firm's perception of the potential of new entry into an industry will depend on the firm's view of the industry's structural determinants of profitability as depicted in Figure 3-3. The "barriers" as perceived will be a combination of both "natural" and "artificial" barriers. "Natural" barriers are those which are those inherent in the nature of the business. There may for example be technological scale economies which require a particular scale of operation - an oil refinery may have to be a certain minimum size. "Artificial barriers" are those that are erected by industry participants to deter potential entrants. "Excessive" advertising expenditures

Figure 2-12

Sequence of Product Flow in an Integrated Oil Firm

Scott maintains that the level of integration is a major distinction between the Stage I and Stage II firm "because it (the stage I firm) does not have sufficiently specialized sub-units."⁸⁷ The key distinction between the two stages then lies in the transition from the "one man show" to the functionally specialized management team and the "closed system" or integrated flow of operations. Scott maintains that "the point is not that 100 percent "pure" integrated or non-integrated firms are the rule, but that companies can be distinguished by the proportion of internal and external transactions."⁸⁸ The Stage II firm is likely to follow a pattern similar to that illustrated in Figure 2-13.

Figure 3-3

Key Determinants of Industry Profitability

Source: Adapted from Porter, Michael E., "Note on the Structural Analysis of Industries", Unpublished Paper, Graduate School of Business Administration, Harvard University, Boston, 1975.

are an example of such a barrier. Pickering has stated for example that:

"Certainly the existence of scale advantages both in the current period and through the affect of past advertising activities may constitute a major barrier to competition from smaller and new entrant firms. This view has been given qualitative support by the Monopolies Commission in its report on detergents where it decided that the advertising and promotional activities of the two leading firms constituted a barrier to entry and on cigarettes where the Commission reported that advertising had helped to preserve the power of a few firms."⁴⁴

However, the foundations for the analysis of entry conditions remain those stipulated by Bain:

"The essential characteristic of the situation in which easy entry prevails should furnish a direct clue to the determinants of the condition of entry in general. For easy entry, three conditions must in general be simultaneously fulfilled. At any stage in the relevant progression of entry,

1. Established firms have no absolute cost advantages over potential entrant firms;
2. Established firms have no product differentiation advantages over potential entrant firms; and
3. Economies of large scale firms are negligible, and in the sense that the output of a firm of optimal (lowest-cost) scale is an insignificant fraction of total industry output."⁴⁵

Bain's study based on the empirical analysis of twenty industries led him to identify the three sources of entry barrier quoted above. These are absolute cost advantages, product differentiation and economies of scale.

3.5.3.2 Absolute Cost Advantages

The established firm will have an absolute cost advantage when its costs are lower than those of the new entrant across the production range. Figures 3-4 and 3-5 are an illustration of absolute cost advantages for fixed and variable costs.

Figure 3-4

Absolute Fixed Cost Barriers to Entry

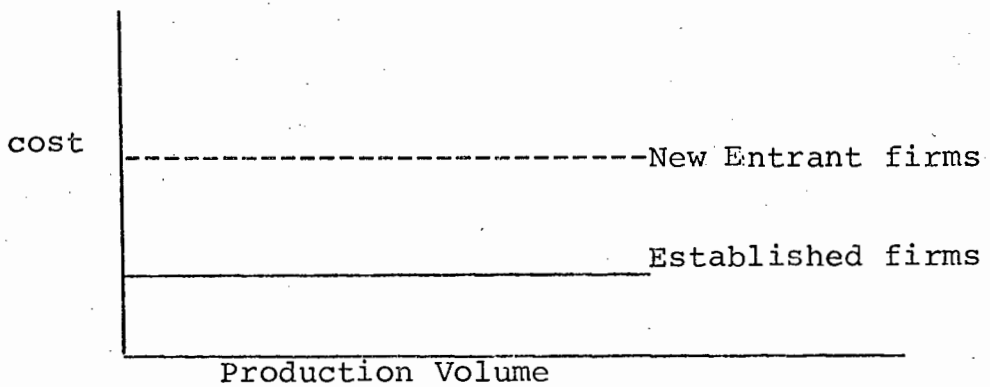
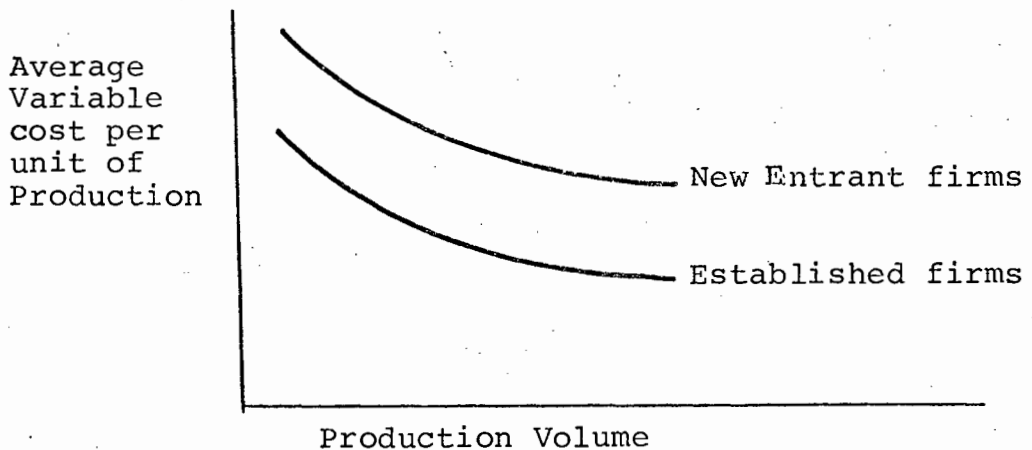


Figure 3-5

Absolute Variable Cost Advantage as a Barrier to Entry



These cost advantages can arise in a number of ways. Examples of fixed cost advantages could be favourable location or lower costs of capital whilst variable cost examples include patents or control over raw materials. The following examples illustrate common absolute cost advantages:

- 3.5.3.2.1. Locations: Retail outfits, shelf space (A major advantage with South African Breweries possessed over Louis Luyt was their control over liquor outlets).
- 3.5.3.2.2. Patents: Control over process (Sasol)
Control over products (pharmaceutical products).
- 3.5.3.2.3. Trade Secrets: Technicological Skills (Coca-Cola, Polaroid)
- 3.5.3.2.4. Raw Materials: Control over scarce material or facilities (gold mines).
- 3.5.3.2.5. Distribution: Limited distribution availability (De Beers control of world diamond market).
- 3.5.3.2.6. Capital: Established firms may have lower capital cost (Barlows would obtain more favourable interest rates on loans than a small firm).

3.5.3.3 Product Differentiation Barriers

These are believed to be more powerful in consumer good industries. These occur because the established firm

is able, through price, quality, design, franchises, customer service and other marketing mix and promotion variables, to obtain buyer preference. The established firm is thus able to obtain a higher margin than the new entrant due to the goodwill established through brand name loyalty and design features. To overcome this barrier the new entrant will have to be willing to offer "better value" for the same price as his established competitor or be willing to incur high start-up costs by generating and obtaining product differentiation for his new product. The net effect is that the new entrant will for an initial period at least, be at a profit disadvantage.

3.5.3.4 Economies of Scale Barriers

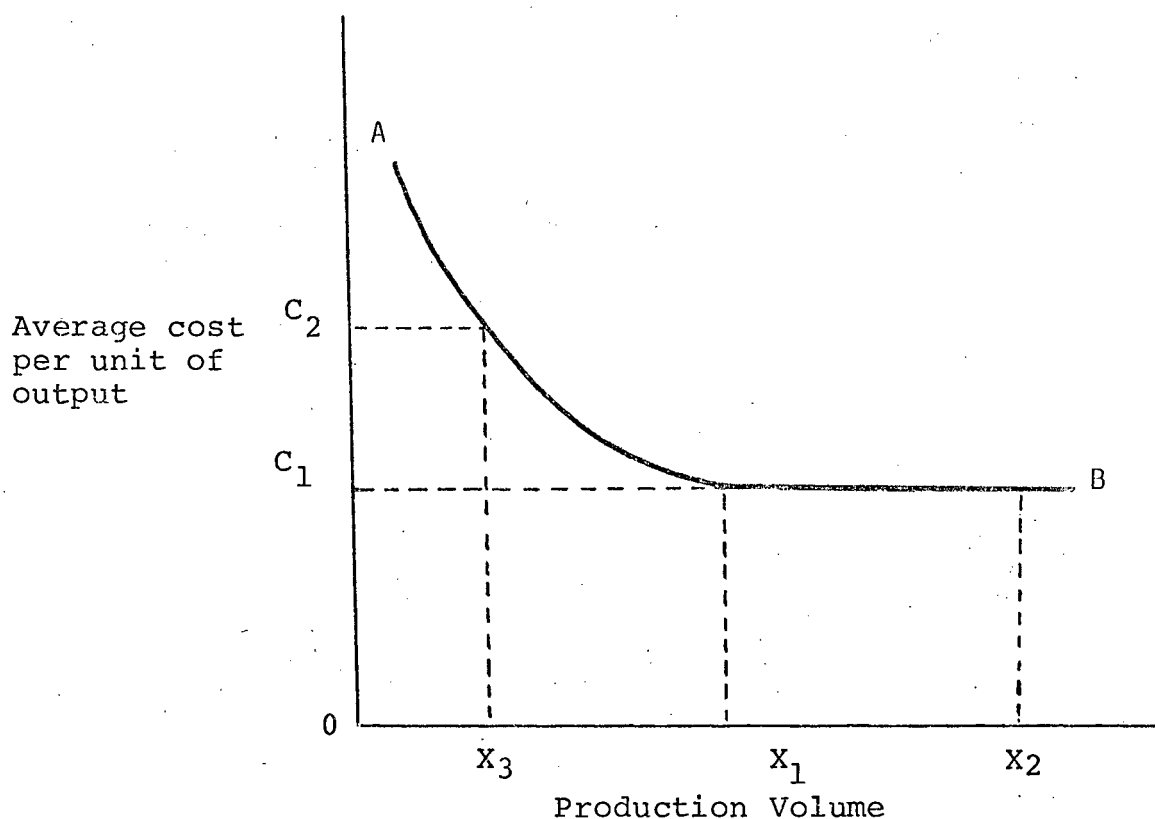
These are seen as a barrier when a new entrant, if he is to operate at optimum production scales, will have to produce such a large proportion of industry output so as to affect existing firms and to illicit response. Scale barriers also exist where the costs for the new entrant are different and higher for the new entrant than for the existing, established firm. Thus economies of scale refer to the level and shape of the cost curves of the firm. Most of the empirical work in this field has focussed on production cost curves and very little has been done in the analysis of marketing costs. A number of further economies

can be identified under the broad umbrella of the economies of scale. Such economies of the firm refer to the economies flowing from mass-production techniques and task specialization. It is also possible to distinguish between "real" and "pecuniary" economies which refer to the use of smaller amounts of input required to produce a unit and the ability to obtain cost reductions through the use of "bargaining power" respectively.

Economies of scale affect entry if the new firm will incur higher costs per unit of production than established firms until it has achieved a "threshold" market share. The higher the market share necessary to achieve costs comparable to those of the established firms - the higher the barriers to entry as a result of economies of scale. Figure 3-6 illustrates the economies of scale entry barrier situation. The shape of the average cost curve in Figure 3-6 is used for illustrative purposes only. The actual shape is open to controversy. In Figure 3-6 the curve is depicted as falling rapidly as production rises and then remaining relatively flat in the high production ranges. This may not be the case in all, or even most, cases.

This effect is due to the benefits caused by the massing of resources. With more equipment and machinery being used for the same purposes the chances that machinery breakdown will seriously interrupt production is lessened

Figure 3-6

Economies of Scale as a Barrier to Entry

Interpretation:

- . A-B is the average, long run cost curve of the industry.
- . O- X_2 is total production required to satisfy market demand.
- . O- X_1 is the "threshold" share of production that a firm must produce/sell to obtain the lowest cost O- C_1 .
- . Any production less than X_1 will mean that the average cost will be higher than the average cost of the established firms. (A production volume of X_3 gives costs of C_2 which makes this level of output uneconomical).

and repaired, set up, and maintenance work can be scheduled more efficiently. Inventory levels can be expected to rise at the same rate of production capacity and in many cases could be reduced as a supplier may be requested to deliver on a daily basis. The large hypermarkets in South Africa are good examples of these economies. Further economies may be realized in marketing and distribution. Not only are these economies of production scale - but certain benefits from the effects of cumulative output over time may also arise. This is known as the "learning curve" effect. Learning is normally believed to occur as the result of the repeated execution of the same task and thus assembly operations and similar repetitive functions are a particularly important source of "experience curve" benefits. However, it also seems likely that all activities in a firm may be subject to similar economies over time to a greater or lesser degree. A considerable amount of empirical work has been performed in this area. Hartley⁴⁶ and Sturney⁴⁷ have analysed "learning curve" economies in the aircraft industry and indications are that a 20 percent cost "decay" occurs for every doubling of output. Other industries also appear to obtain similar benefits. In the semi-conductor industry the decay for a doubling of output appears to be in the 20 to 30 percent range⁴⁸ and in certain machine tools the reduction in costs has been found to range between 16 and 25 percent for a doubling of output.⁴⁹

It can thus be seen that the factors influencing entry into a new business area will depend on a wide range of considerations. These range from analyses of demand factors such as market size, growth rates, segments and product differentiability potentials, suppliers and cost analyses, to a careful analysis of competitors already in the industry as well as other potential entrants.

3.6 Why Do Firms Diversify?

Firms will tend to diversify and change their product-market environment for a wide variety of reasons. Ansoff lists four major reasons as follows:⁵⁰

- 3.6.1. "Firms diversify when their objectives can no longer be met within the product-market scope defined by expansion."

This is almost certainly a major diversification trigger. This situation can arise for two reasons:

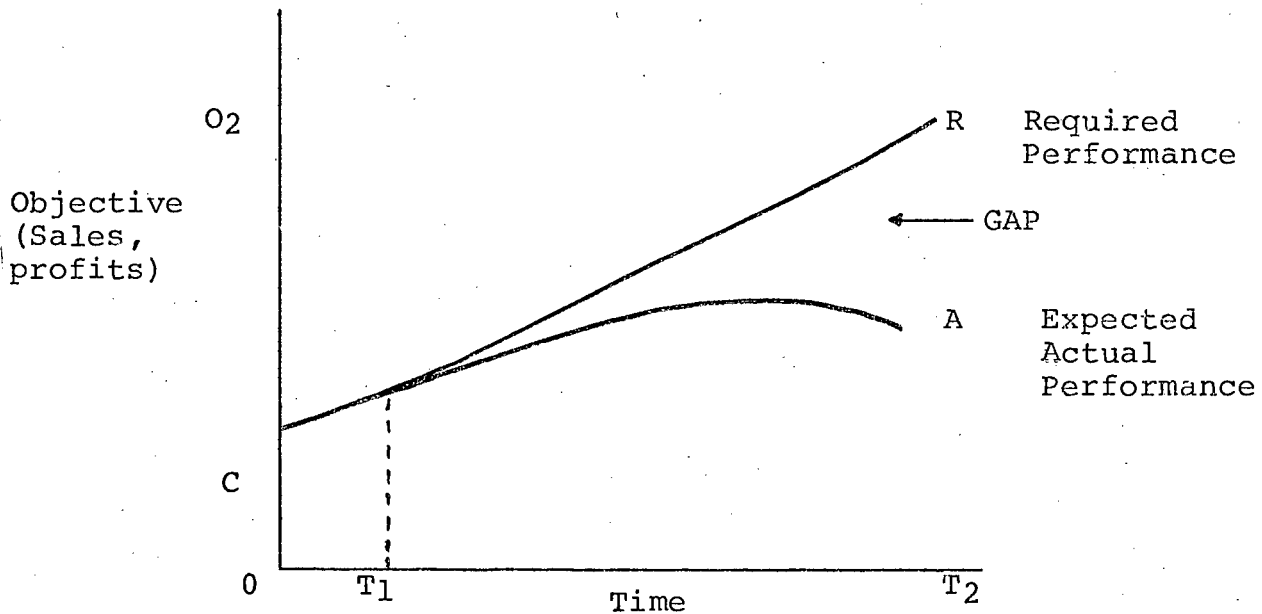
- 3.6.1.1. Product—life cycle effects of market maturation and saturation may indicate that achievable performance will fall below the objective or target performance. Figure 3-7 illustrates the concept of "gap analysis" and Figure 3-8 that of the product life cycle.

The period 0 to T_1 in Figure 3-7 gives management an indication of the time horizon available for them to take action to "fill the gap". This gap can only be filled by expansionary or diversification efforts.

- 3.6.1.2. Management revises its objectives upwards. This may be due to a variety of reasons.

Ansoff also stresses the importance of flexibility as an objective in the decision to diversify. The company may have become too dependant on a single industry or customer or on an individual supplier of raw materials and in order to remain flexible decides to spread the firm's activities. A decision to diversify to obtain flexibility is similar, yet different from the decision to diversify as a result of market maturation and saturation expectations

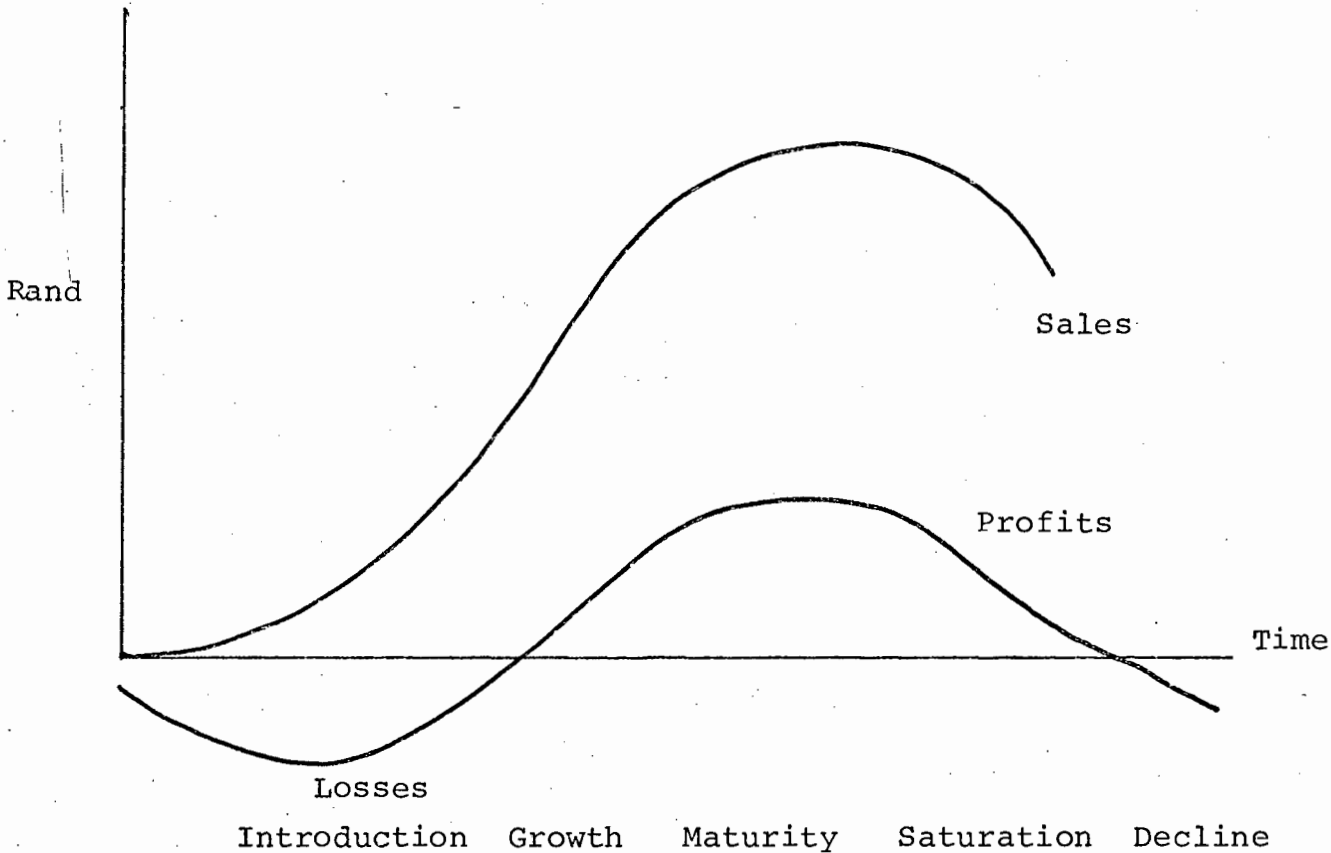
Figure 3-7
Gap Analysis



Interpretation:

- At time 0, the firm projects expected actual performance as illustrated by curve CA. This curve declines in the future due to the effects of market maturation and saturation. (See Figure 3-8.)
- The corporate management will require compounded growth for the projected variable which could be sales or profits - this objective is represented by curve CR.
- At time period T₂, a significant gap between required and actual performance exists. This implies that the actual performance lags behind required performance by O₂-O₁ at time T₂.
- The "gap" begins to appear at time period T₁.

Figure 3-8

The Product Life Cycle for a Hypothetical ProductInterpretation:

- Sales are seen to rise slowly at first due to the relative "newness" of the product, then grow rapidly. Growth then begins to slow as the market becomes mature and ultimately saturates when demand peaks. Certain products will then go into decline until they are finally withdrawn.
- Losses and expenses are incurred before introduction due to research and development, start up and production costs and investments. During the early stages of the life cycle, losses are still likely due to high promotional expenditure. The product will (hopefully) break-even during growth and then profits peak and ultimately fall as sales decline.

caused by product life cycle effects. A firm may decide that, despite satisfactory growth expectations in the present product-market area, a new area may be a more attractive investment area due to "flexibility" benefits.

3.6.2. "Even if attractive expansion opportunities are still available and past objectives are being met, a firm may diversify, because the retained cash exceeds the total expansion needs."⁵¹

Where the firm finds itself in the situation where the present product-market operations generate excess cash - the so-called "cash cow", it has two basic options. These are, firstly, to return the funds to the shareholders in the form of dividends and thereby to liquidate the firm over time. This option would be followed if shareholders believe that they could earn a greater return with the funds so distributed than the firm could expect to earn if the funds were retained in the firm.

The second alternative would be to use the funds to enter new industries, where returns are expected to exceed the rate of return that shareholders would earn if the funds were returned to them in the form of dividends.

3.6.3. "Even if current objectives are being met, a firm may diversify when diversification opportunities promise greater profitability than expansion opportunities."⁵²

A firm would consider a diversification opportunity if say, that opportunity promised a return in excess of the firm's cost of capital despite the lower returns as

a result of reduced "synergy" effects brought about by the fact that the firm would possess no "core skills".

Another factor which would facilitate diversification moves is the "throw-off" from research and development efforts. Many firms which contributed to the "space race" during the 1960s have found consumer markets attractive. Solar heating is a good example of such a technology.

3.6.4. "Firms may continue to explore diversification when the available information is not reliable enough to permit the conclusive comparison between expansion and diversification."⁵³

Ansoff supports his statement when he maintains that "in such situations many firms have shown in the recent past an unfortunate tendency to plunge rather than probe."⁵⁴ A classic example of the problems defining whether a potential market acquisition represents a move into a "related" area or a "unrelated" move which represents diversification, is that of Heublein Incorporated's move to acquire the Hamm's Brewing Company. Heublein apparently believed the acquisition of a "beer" company was a related move for a company primarily involved in the marketing of liquours - more specifically, the well known vodka "Smirnoff". The move proved to be a corporate disaster and the move actually represented radical diversification from the "core skills" of Heublein management. The South African experience has been no less traumatic - the South

African Breweries take over of O.K. Bazaars is perhaps an excellent example of a plunge rather than probe approach to diversification.

Another reason which can result in an active diversification policy and which is related to those listed by Ansoff is the desire to build on a "core skill". The critical skill in this approach is the definition of the "core skill". The Gillette Company's definition of its 'core skill' has been described as "the marketing of consumer goods". This has led the firm into a wide range of fast moving consumer products including shaving razors, shaving "support" products, cosmetics, deodourants, sunglasses, calculators and electronic wristwatches. In South Africa, T.W. Beckett and Company has sought products which can be readily distributed by their powerful and well controlled sales force.

Competitive threats can also pressurize a company into diversification. Salter uses the example of Xerox's interest in typewriters and IBM's interest in copiers to illustrate this cause for diversification.⁵⁵ The threat of Rupert's Rembrandt organisation has probably contributed to United Tobacco's efforts to move into diversified areas such as food.

Bright has summarized the key justifications for the pursuance of a diversification policy as he sees them as follows:

- 3.6.3.1. A desire for more growth than the present line yields.
- 3.6.3.2. A need to react to external pressure.
- 3.6.3.3. A desire for better use of resources and facilities.
- 3.6.3.4. A desire to avoid concentration in a government regulated area of business.
- 3.6.3.5. A need to obtain the services and skills of one or more key people.
- 3.6.3.6. A desire to use profitably, new technology developed in the company.⁵⁶

A checklist of reasons why firms may choose to diversify is given in Appendix I.

3.7 The Routes to Diversification

Given that corporate management has decided to achieve objectives by diversification, the next critical decision is concerned with the manner in which the preferred level of diversification is to be achieved. Ansoff's view is:

"The process of strategy selection was carried out in broad terms without reference to whether the firm will grow by acquisition or develop from within. The decision on whether to "make or buy" new product-markets is needed before strategy can be implemented."⁵⁷

Other writers share Ansoff's view of a choice between the external or acquisition approach and the internal development approach and that the strategy over time is likely to contain elements of both strategic alternatives although other entry methods such as licensing and other contractual arrangements also permit entry.⁵⁸

Clearly the strategy selected or emphasized at any time will depend on the assessment of the entry conditions prevailing. Thus the strategy selected will depend on the perceived entry barriers. As Narver has noted:

"Any given barrier to entry is least prohibitive of entry by merger, somewhat more effective as a deterrent to internal diversification, and most effective as a deterrant to entirely new firms. We offer no judgement whether it is good or bad that entry into some markets can be effected only by merger or some internal expansion by established firms rather than by new firms. We note only that, by definition, the complete absence

of barriers to entry in any market could mean that entry is possible for the entirely new firm."⁵⁹

This implies that the merger and acquisition route is easier - yet this is not necessarily so and the process by which the acquired firm is integrated into the parent, and if required, corrective and expansionary steps are implemented, may be difficult and extend over a considerable period. As Miller has observed:

"Special conditions must prevail before a company becomes available for acquisition. Usually the business needs substantial outside support to sustain an expansion or modernization programme. If its management has an improvement program already planned, headquarters may be reluctant at first to take an active role in the new business other than provide new capital for it. In other words, the diversifying company does not create the conditions necessary to make acquisitions, nor can it step in immediately after an acquisition to manage a business it knows nothing about. It can only orient its contacts towards the kinds of businesses it wants to acquire, exert considerable patience to wait for the right opportunity, bring matters to a head with a concrete offer, and then establish the kind of communication system that will allow it to understand the new business gradually."⁶⁰

The diversification decision and the management approach adopted to implement that strategy will thus depend on existing barriers and the anticipated reaction of existing firms in that industry. The analysis of expected competitive behaviour is obviously more complicated and difficult than the analysis of present behaviour.

Several assumptions or scenarios could be formulated with respect to how established firms will react to entry and to how entrants expect established firms to react. These reactions could be positioned on a continuum ranging from "no reaction" to "violent reaction". Certain writers, notably Modigliani, have analysed the position from the most pessimistic viewpoint. Modigliani, in an analysis of another study has called this approach the "Sylos Postulate".⁶¹ Another approach could be to assume post-entry behavior will follow pre-entry behavior or to work backwards as suggested by Weinberg:

"If you were to ask me, let us say, to forecast what would happen if I acquired a certain company, this would be a difficult thing for me to do. But what I could do with a high degree of assurance would be to use the mathematical principle of inversion. Here is how it works: I can ask myself, 'If I acquire this company for so much money, what has to happen in the marketplace for this to be an attractive investment?' You see, I am not forecasting what is going to happen for that company to be an attractive investment. If I know what has to happen, I can then apply my logical, qualitative judgement to the likelihood of it actually happening."⁶²

Despite Weinberg's contingency, bayesian approach, the analysis of the conditions that a new entrant can expect is, at best, vague and subjective. Needham has described the problem in this way:

"Whereas the behaviour of potential entrants depends on how they expect established firms to react to entry, the behavior of established firms depends on how established firms think potential entrants expect them to react to entry."⁶³

Ansoff maintains that the internal versus external route decision revolves around the consideration of two important variables - startup costs and timing:

"In internal development the costs are incurred by product development and introduction, and by building of new facilities and organisations. Acquisitions pay for these costs too; however, over and above them is a premium which frequently has to be paid as a compensation for the risks which have been taken by the seller... Because of this premium, it is sometimes argued that internal development is cheaper."⁶⁴

The only empirical evidence regarding the timing of internal expansion versus external acquisition is that of Nelson.⁶⁵ The major hypothesis tested was that developed by Nelson in an earlier study.⁶⁶ In that earlier study Nelson hypothesized as follows:

"The merger may be accomplished only when the expansion of the various firms has proceeded to the point at which they are operating at capacity... We might thus expect to find merger activity occurring at the stage in a cyclical expansion when many industries have reached capacity production."⁶⁷

In his study to test this hypothesis, Nelson found the contrary applied. That is to say that "the time sequence of peaks (in the activities of plant expansion and mergers) suggests that mergers reach their zenith first, followed by contracts for plant, orders for equipment and finally by stock prices."⁶⁸ Nelson confesses his surprise at the findings and in his discussion of the implications of the

evidence, he confirms Ansoff's statement. It would appear that mergers are financed with capital costing more than that used to finance plant expansion - that is a price premium is paid for acquired firms. This is to be expected because the execution of an acquisition move can be carried out in a matter of weeks as compared to the lengthy new product development process and the time taken to obtain a return on the funds invested.

In an interesting and more recent study carried out by Merrill Lynch, Pierce, Fenner and Smith of the recent flurry of merger activity on Wall Street - seems to confirm Nelson's findings regarding the premium price paid for acquisitions. They state that:

"Corporations with high growth rates and sound financial condition have been willing to pay substantial premiums over market - an average of 50 percent..."⁶⁹

The study also suggests that the wave of mergers is in advance of a peak economic activity and that the trend is not "conglomerate" in nature. The fact that most acquisitions are being made in the same or related business sector is also of interest. The pattern of the underlying reasons for the majority of the acquisitions appears to be a part of the corporate strategies of the buying firm and not some random process.

In a study performed in South Africa, Lipworth and Strebel have commented on the difference between the South African economic environment and the tendency of South

African firms to favour the external, take over route:

"...The South African economy is quite different from the larger Western economies, in which the cost of re-producing an operation internally is not as adversely affected by skilled manpower constraints, and consequently, is often less expensive than external acquisition. Thus in contrast with overseas economies in which the greater external benefits from operational synergies often are cancelled out by the greater external cost, in South Africa the structure of synergistic benefits and costs associated with acquisitions tend to favour the external over the internal route."⁷⁰

This section has summarized the managerial reasons and routes open to firms seeking diversification. Both internal and external routes and some empirical findings relating to the timing of the route alternatives were presented and discussed. The following section seeks to evaluate the performance of the two routes to diversification by examining the empirical studies in the literature.

3.8 Performance Evaluation of Internal Development Strategies

Entry by a firm into a new market represents diversification and in many cases has been the major reason for corporate survival where the older, established product has declined due to product life cycle effects. Many of the largest firms in the 1970s have moved from single products to participation in many product areas. For example, Rembrandt began in the cigarette market in the late 1940s and now operates in instant coffee, food, beer, liquor and mining. Barlows, had its beginnings as a single retail outlet and now operates in construction equipment, television, radios, household appliances, mining, steel and motor retailing amongst other markets. On the international scene the situation is even more dramatic with many of the major corporate giants entering new markets continually.

A number of factors suggest that entry into a new market is likely to have a greater probability of success if the new entrant is an established firm. Such a firm is likely to have established markets and administration, and economies of scale, lower costs of capital, reputation and excess cash flows which can be diverted to the new area - almost all of which are not possessed by a new firm. Hines sees "superior information" as a major advantage possessed by an established firm and that these many advantages can produce a situation "in which new firms cannot enter at all, whereas established firms can."⁷¹

However, the literature contains little evidence on the performance of new entrants. The only major study in this area is the Biggadike study which is discussed in detail below. The theory implies that losses can be expected during the early stages. In 1951, Andrews theorized as follows:

"It would not be realistic to require that, on entry, they should be able to get normal profits. They will expect higher costs in the beginning than they achieve later as they get experience, and will hope for increasing goodwill to enlarge their share of market. Their entry into the industry will be decided on the basis of estimates of what they can hope to achieve at some relatively more mature stage."⁷²

Biggadike appears to be surprised by the lack of empirical evidence and research in the field of new entry when he states:

"In spite of its importance, there is little hard data... there is no cross-industry evidence on how long entrants have to wait, (to become profitable) how much higher their initial costs are or how long it takes them to enlarge their share."⁷³

He is critical of the individual case study approach and states:

"This type of evidence is not suitable to serve as a basis for building empirical generalizations which can improve understanding of entry. For example, the frequency of the negative performance results (reported on an individual company basis) is not known. How many entrant businesses contribute only losses,

over what time period, to their parent companies? How can the performance of entrants be explained? Unfortunately, existing research has not studied entrant businesses specifically and thus cannot answer these questions."⁷⁴

Biggadike examines the performance of forty established firms which entered new business areas. His research analysed their performance over a four year period. These data are then compared to a separate sample of businesses extracted from the Profit Impact of Marketing Strategies (PIMS) data base which contains information on performance for a second four year period. The combination of Biggadike's and the PIMS data thus provides an eight-year history of entrant business performance.

The research shows that the first two years after entry are subject to considerable variation in financial performance. Certain interesting factors can be highlighted. Pretax return on investment was on average, a negative value of 78 percent. The reported returns ranged from a positive 80 percent to a negative 442 percent. Pretax profit on sales revenue averaged -94 percent while the gross margins averaged 12 percent. These two ratios are related as gross margin is calculated before research, distribution and marketing expenditure while the pretax profit to sales ratio is calculated after these expenses but before interest and taxes. The comparison of the two

ratios provide a measure of the importance of these expense items during the early stages of a product's life. Biggadike comments as follows:

"Expenses in general, and marketing and research and development expenses in particular, were the causes of negative financial performance. Out of the forty entrant businesses, only 12, or 30 percent showed a negative gross margin/sales revenue ratio. The adverse influence of initial entry expenses needs emphasis because, although expected in new product introductions, there is a tendency to believe that the entry problem is one of an initially low return on investment because of significant capital requirements... During the first two years, the sample mean market (expenses)/sales revenue (expenses) was 41 percent...and the research and development (expense)/sales revenue mean was 51 percent... Both these summary statistics show that entry is particularly demanding on these two expense items in the early years. To put this point another way, mean marketing and research and development costs amounted to 92 percent of the sales dollar, about the same as the 89 percent of the first two year sales dollar spent on purchasing inputs and manufacturing line product."⁷⁵

In years three and four following entry the performance of the sample showed considerable improvement - although still unsatisfactory. The ratios are roughly "half as negative in the second two years as they were in the first two years."⁷⁶ The return on investment rose to -43 percent to -78 percent. The findings show rapid increases in sales revenues and the expected fall in sales revenue related ratios. Some 98 percent of the sample showed revenue increases. An interesting finding is that marketing

and research research and development expenditures continue to increase in the first four years after entry. This is contrary to research findings as reported in the literature. Biggadike quotes the Buzzell and Nourse study which indicated that absolute marketing expenditures on new food products dropped between 30 and 60 percent in the second year after introduction.⁷⁷ However, the disparity in the findings can be explained by the fact that Biggadike's research focussed on new business areas and not new products. Biggadike finds that marketing expenditures increased dramatically in the second two year period. In the sample, 89 percent increased marketing expenditures with the most increases of two or three times and certain firms increasing by as much as ten times the expenditure in the first two years.

Biggadike then analysed the available data over an eight year period with his original sample providing the first four year period and the PIMS data base the second four year period. The PIMS sample consisted of 61 firms and these were referred to as the "adolescent" group. In addition, the PIMS data base also provided 454 firms which could be regarded as being "established" firms. Analysis over the eight year period provides an answer to the question, "How long, on average, do entrant businesses take to achieve the performance characteristics of established businesses?"

Table 3-13 shows the performance findings for new entrant firms, as well as the "adolescent" and "established" groups. In general, the results can be regarded as fairly depressing. In Biggadike's words:

"It seems that entrant businesses need about eight years before their return on investment and return on sales become positive... In the fourth two years, mean return on investment was +5 percent with a median of +7 percent and mean return on sales was +1 percent with a median of -4 percent. Although these two measures are at least positive in the fourth two years, they still have some way to go before attaining the mean 21 percent return on investment and 10 percent return on sales of the established businesses in the PIMS sample. In fact, a time projection of the values in each of the four periods predicts that entrant businesses will attain established business performance in their fifth to sixth two years; that is to say, it seems that ten to twelve years elapse, on average, before entrant businesses return on investment and sales equals that of the established businesses."⁷⁸

The position is even more bleak from a cash flow point of view. Many executives appear to be more concerned with cash flow than traditional performance measures. Indeed, Henderson of the Boston Consulting Group has written - "Cash is all that counts. Profit is a promise."⁷⁹

Biggadike's findings indicate that "cash flow/sales does not become positive at all in the eight year period" and that entrants can only expect a positive value for this measure in year twelve.⁸⁰

In the analysis of market share performance, the findings are equally depressing. Table 3-14 shows comparative market share performance for the new entrants as well as the "adolescent" and "established" groups. The new entrants appear to gain a share and which then stabilizes around a mean value of 15 percent. This is suggested by the fact that entrants and adolescents have a mean market share of 15 percent over the eight year period. This is not an encouraging finding according to the researcher:

"What is so disturbing, however, is that the adolescent businesses, after eight years of commercialization, were still so far behind the share performance of the established businesses."⁸¹

Table 3-13

Comparison of Financial Performance Over Eight Years
and Against Established Businesses - Means in Percentages

Financial Performance Ratios - Means	New Entrants		Adolescent Businesses		Established Bus. (n= 454)
	Years 1 and 2 (n = 40)	Years 3 and 4 (n = 28)	Years 5 and 6 (n = 61)	Years 7 and 8 (n = 61)	
Pretax Return on Invest.(1)	-78	-43	-5	+5	+21
Pretax Return on Sales (2)	-94	-35	-13	+1	+10
Cash Flow/Sales(3)	-127	-50	-10	-5	+2
Gross Margin/Sales(4)	+12	+26	+22	+24	+27

1. Defined as Net Pretax Income/Average Investment.

2. Income defined as in 1 above as a percentage of sales and lease expenditures.

3. Net income times one half minus all investment in year 1 and incremental in years t+1 as a ratio to Sales Revenue.

4. Sales revenue minus purchases, manufacturing and depreciation as a ratio to sales revenues.

Source: Biggadike, Ralph, "Entry, Strategy and Performance", Unpublished Doctoral Dissertation, Graduate School of Business Administration, Harvard University, Boston, 1976. Tables 4-1 and 4-12.

Table 3-14

Market Share Statistics for Entrants, Adolescents and Established Businesses

Market Share Statistics	New Entrants		Adolescent Businesses	Established Bus.
	Years 1 and 2 (n = 37)	Years 3 and 4 (n = 25)	Years 5 and 8 (n = 61)	(n = 454)
Mean Share	15	15	15	23

Source: Biggadike, Ralph, "Entry, Strategy and Performance", Unpublished Doctoral Dissertation, Graduate School of Business Administration, Harvard University, Boston, 1976, Table 5-3.

Table 3-15

Market Share Frequency Distribution for New Entrants and Adolescents

Market Share Frequency Distribution	Years 1 and 2		Years 3 and 4		Years 5 and 8	
	Number of Entrants		Number of Entrants		Number of Adolescents	
- Less than 1% share	7		3		0	
- 1 % to 10% share	16	62%	13	64%	31	51%
- 11% to 20% share	6		4		16	
- 21% to 30% share	1	19%	0	16%	2	30%
- More than 30% share	7	19%	5	20%	12	20%
	<u>37</u>	<u>= 100%</u>	<u>25</u>	<u>= 100%</u>	<u>61</u>	<u>= 100%</u>

Source: Biggadike, Ralph, "Entry, Strategy and Performance", Unpublished Doctoral Dissertation, Graduate School of Business Administration, Harvard University, Boston, 1976, Table 5-3.

Clearly, the results are not encouraging. The findings presented here are really the result of two separate studies, namely, the PIMS research and Biggadike's study and the results are remarkably consistent.

3.8.1 Conclusions

The research findings presented above are a summary of the most recent research into the effectiveness of what is termed "internal development". Biggadike feels that the relatively poor performance is due partly to management objectives being too conservative and that the performances are "self-inflicted". It would appear that entry on a large scale is a necessary requirement for success in rapid growth markets. The firms analysed in the Biggadike study entered markets growing at an average rate of 50 per cent per annum. This means that the maximum market share that a new entrant can achieve falls rapidly each year. Thus a new entrant into the market, who constructs a plant with a capacity of say 30 percent for his entry bid, finds that after three years, his maximum potential share has fallen to $30/338$ or 8.8 percent. If the new entrants' market share objective was 15 percent in year 3, not an unreasonable target, this objective is impossible to achieve since his maximum potential share is only 8.8 percent. To achieve a 15 percent market share in year 3

would require an initial capacity of $.15(338) = 51$. It would be a bold new venture manager who would construct a plant with a capacity of 51 percent of the present market. It could be argued that the logical strategy would be to obtain a "toe-hold" and then expand plant capacity - but again, it takes considerable courage to increase investment when the return on investment figures suggest an average return of -78 percent in the first two years and cash flow to sales is -127 percent in years one and two and -50 percent in years three and four!

The problem of successful internal development is further complicated by the fact that many firms use return on investment as an evaluation device and the tendency of this measure to contribute to short planning horizons will discourage investment in projects with long term pay-off.

Biggadike makes an interesting point in that his research suggests that the traditional entry barriers such as price competition are not as important as suggested in the literature. He states that his research:

"...indicated that difficulties arose not so much from incumbents' 'ganging up' on the entrant, the usual naive conception of the entrant's problem in theory. Rather, entrants difficulties are inherent in starting up something new: these difficulties are the initial, inevitable stages of a new learning curve - the process of 'debugging' an incremental innovation. Consequently, poor judgements and decisions occur;

such as entering too small, misjudging the impact of rapid market growth and mis-calculating relative price and quality levels. There is, therefore, a 'natural' as opposed to a 'malevolent' explanation for the new entrant's difficulties in product markets."⁸²

It should also be noted that the results of Biggadike's study are actually an understatement of the actual situation. The study analyses only "survivor" performance and thus it can be assumed that all entrant performance was considerably worse. If the findings regarding new product failure are accepted as an indicator of failure then the failure rate is probably very high. In addition, Biggadike confined his study to highly diversified and successful firms. These firms were also very large as they were selected from the top two hundred firms in the "Fortune 500". These firms can be expected to be more successful at the launching of new business ventures as they were already diversified and can be expected to employ very experienced managers.

The fact that new entrants can expect considerable problems and that the internal development route can take a decade to implement are undoubtedly important reasons why firms have tended to use acquisition as an entry-vehicle. The findings and reasons of the attraction of this the "external development" route are discussed in the following section.

3.9 Performance Evaluation of External Development Strategies

This section seeks to review the literature pertaining to the externally oriented growth strategy which is typified by the takeover or merger. The survey will begin with the review of the evidence provided by previous studies which cover the possible sources of improved performance which are said to be available to the firm diversifying and growing by acquisition.

3.9.1. Financial Performance and Market Value

There does seem to be a relationship between superior financial performance and the market value of a firm's shares. Earnings per share in particular, appear to have an important influence on price-earnings ratios. A number of studies have suggested that earnings per share are closely correlated with price-earnings ratios. Benishay,⁸³ Whippner⁸⁴ and Miller and Modigliani⁸⁵ have shown that this relationship is positive. The practicing businessman also appears to be concerned about reported earnings per share. This concern is particularly noticable in statements made by executives in conglomerate-type firms. For example:

- Harry Figgie, Chairman of Automatic Sprinkler Corporation stated "There must be an increase in earnings per common share; we will never dilute the earnings on common shares."⁸⁶

- William Duke, President of Whittaker Corporation states, "We will not dilute earnings per common share in any acquisition or merger."⁸⁷
- George Sharffenberger, President of City Investing Inc., stated, "It (an acquisition) must add, when joined to City, at least 20¢ a share in earnings."⁸⁸
- Charles Allen, Vice-President of Finance of TRW Corporation states, "The price of an acquisition must be such that it will not dilute earnings per share on a fully converted basis now or in the future."⁸⁹
- Martin Stone, President of Monogram Industries is quoted as saying, "Remember, constantly increasing earnings per share is the name of the game."⁹⁰
- Clyde Skeen, President of Ling, Temco, Voight stated his company's objectives as follows, "We desire to grow but as we grow we will always keep our eye on that precious commodity - the earnings of our company. Our objective is to grow in terms of sales and earnings per equity share..."⁹¹
- Harold Geneen, President of ITT, speaks of "Aiming at and achieving a sustained 10-12 percent compound annual per share growth..."⁹²

The acquiring firm is able to increase earnings per share by issuing ordinary shares at a price earnings ratio above that of the acquired firm. The following

example will illustrate this process. Assume two firms, Purchaser (P) and Seller (S), and the following data:

	<u>Purchaser</u>	<u>Seller</u>
1. Profit after tax	10,000	25,000
2. Shares outstanding	5,000	10,000
3. Earnings per share ($1 \div 2$)	200¢	250¢
4. Price earnings ratio	15X	12X
5. Market price of Shares (3×4)	3,000¢	3,000¢
6. Market value of firm (2×5)	150,000	300,000

If P decides to acquire S by a share transaction based on market prices, P will issue 10,000 shares with a market value of 2,000¢ each. ($R\ 300,000 \div 3,000¢$). The post acquisition position is thus as follows:

	<u>Purchaser</u> (post acquisition of S)
1. Profit after tax	R 35,000
2. Shares outstanding	15,000
3. Earnings per share	233.33¢

Thus by a "miraculous" (and illusory) process, earnings per share have increased by 16.67 percent. It could also be suggested that "everyone wins" at this game. If one assumes that the Purchaser will retain a price earnings ratio of 15 than shareholders of Seller would now own 10,000 shares with a market value of $233.33 \times 15 \times 10,000 = R350,000$.

Thus their "wealth" will have risen R50,000. The owners of Purchaser shares will also be seen to have gained. A holding of 1 Purchaser share is now valued at $233.33 \times 15 = 3,500\text{¢}$. This is a 16.7 percent rise. Thus everyone wins! This procedure holds true for all cases where the purchaser firm acquires seller firms using exchange of shares at market prices and where the purchaser firm's price-earnings ratio is greater than that of the seller and does not decline.

It would appear that during the development phase of the conglomerate era, earnings per share were an important influence on the price-earnings ratios of such firms. The price-earnings ratio was seen as an important source of growth given the impact of earnings-per-share which resulted from acquisitions using the technique illustrated above. May has summarized the situation as follows:

"Sometime during each generation, the magic of the chain letter is rediscovered. The phenomenon has reappeared this time in a very unusual and unlikely locale and form; it has seduced the investment community.... It is not a trick with numbers. Companies...have created and are continuing to create money machines. The increases in market value of their stock are real and the shares trade just like any other securities."⁹³

As the stock market investors seemed to emphasize earnings per share and to value companies with rapid earnings per share growth very highly thereby improving the price-earnings ratios of those companies, management

was forced to pay more attention to this measure of performance. Textron's Vice President of Finance described the influence of the trend toward emphasis of earnings per share as follows:

"We have to be concerned with increasing our earnings per share, just like everyone else, because that seems to be the way the game is scored in the stock market. The market seems to value increasing earnings per share more than a high return or corporate net worth."⁹⁴

Corporate management were forced to obtain and maintain high price-earnings ratios in order to fuel their acquisitive growth strategy. Wall has given the following advice on the methods to obtain and maintain a high price-earnings ratio:

"Get hold of the speeches and annual reports of the real savvy swingers who know the lingo and can make it sing... You have to project the right image to the analyst so they realize you're the new breed of entrepreneur. Talk about the synergy of the free form company and its interface with change and technology. Tell them you have a windowless room full of researchers... scrutinizing the future so your corporation will be opportunity-technology oriented... Analysts and investors want conceptually oriented conglomerates, preferably in high technology areas. That is what they pay the high price-earnings ratios for, and life is a lot less sweaty with a high multiple."⁹⁵

Dreyfus, in similar vein, commented as follows:

"Take a nice little company that has been making showplaces for forty years and sells for a respectable six times earnings per ratio. change the name

from Shoelaces Inc. to Electronics and Silicon Furth-Burnes. In today's market the words 'electronic' and 'silicon' are worth fifteen times earnings. However, the real play comes from the word 'furth-burners', which no one understands. A word that no one understands entitles you to double your entire score. Therefore, we have six times earnings for the shoelace business and fifteen times earnings for electronic and silicon, or a total of twenty-one times earnings. Multiply this by two for 'furth-burners' and we now have a score of forty-two⁹⁶ times earnings for the new company."

The performance of the acquisitive conglomerate firms was phenomenal. Malkiel describes the process by which Automatic Sprinkler was able to generate its performance record as follows:

"Between 1960 and 1968, the company's sales volume rose by over 1400 percent. In the middle of 1967, four mergers were completed in a twenty-five day period. These newly acquired companies were all selling at relatively low price-earnings multiples, and thus helped to produce a sharp growth in earnings per share. The market responded to this 'growth' by bidding up the price-earnings multiple to over 50 times earnings in 1967. This boosted the company's stock from about \$8 per share in 1963 to \$73 5/8 in 1967. Mr. Figgie, the President of Automatic Sprinkler performed the public relations job necessary to help Wall Street build its castle in the air. He automatically sprinkled his conversations with talismanic phrases about the synergy of the free form company and its interface with change and technology... Wall Street loved every word of it."⁹⁷

The above examples suggest that during the "conglomerate era" earnings per share growth was seen as a major investment guide and companies were able to use rapid earnings per share growth to generate high price-earnings ratios which in turn assisted the firm to acquire firms which further improved earnings per share. However the price-earnings ratio is a reflection of future growth prospects. In the situation where the acquirer, purchases a firm which warrants a lower price-earnings ratio, this means that the acquired firm has low growth prospects and hence will serve to reduce the overall growth rate of the combined firms. Thus, despite an improvement in earnings per share, the overall growth rate falls. A number of writers have commented on this effect.⁹⁸ Others, including Stern⁹⁹ and May¹⁰⁰ have pointed to the dangers of using earnings per share to evaluate performance.

3.9.2 Exploitation of Debt Capacity

A firm which has adopted the external route for growth will seek firms which have "unused" debt capacity. This implies that the acquiror will be able to determine the "optimal" capital structure for the acquired firm and perhaps use any unused capacity to assist in paying for that firm. The concept of an "optimal" capital structure for a firm rests on the relationship between market value

and the employment of debt. This issue has been the subject of a vast number of studies and is as yet, unresolved. The major problems appear to be those of measurement and the elimination of biases. As Lynch has noted:

"Such studies have typically been regression analyses or cross-sectional samples within given industries. Firms in a given industry which choose to employ greater leverage are likely to be those which have lower business risks, higher rates of return, and therefore greater growth, lower capital costs, and higher market prices. It is difficult to hold 'everything else the same' in evaluating the effect of leverage on market value. In addition, firms within a given industry typically do not provide a very wide range of leverage... The point, however, is that the evidence regarding this relationship is only suggestive."¹⁰¹

The evidence in the literature is also inconclusive.

Weston and Brigham state that:

"The effect of leverage on the cost of capital (and hence on the value of the firm) is much less clear; indeed, this issue has been one of the major controversies in finance for the past 20 or so years, and perhaps more theoretical and empirical work has been done on this subject than any other in the field."¹⁰²

Weston and Brigham summarize the opposing views as follows:

"The traditional view suggests that the average cost of capital declines rapidly with debt over a certain range and then

begins to rise rapidly. The result is something approximating a U-shaped average cost of capital curve. The average cost of capital, according to Modigliani and Miller, is constant in a world with no taxes, but declines continuously with increases in debt when corporate income taxes are considered. Thus, the Modigliani and Miller model suggests that a firm that pays no corporate taxes need not worry about its capital structure, while the firm that does pay taxes should take on as much debt as it can get. Under the compromise view - which reflects our own feelings - the average cost of capital curve is more saucer-shaped than U-shaped."¹⁰³

In a study of the South African position, Bethlehem has found no consistent relationship between debt and return on equity for South African firms during either boom or recession periods in the economy.¹⁰⁴ According to the theory of financial leverage, a highly geared firm should be capable of rates of growth and return greater than those of an ungeared firm. Table 3-16 illustrates these concepts. It is clear that the firm employing higher debt levels is able to:

- 3.9.2.1. Show a superior return on equity performance. (15 percent versus 10 percent) However, it must be stressed that this increased return is required by the investor to compensate for the increased financial risk.
- 3.9.2.2. Show superior earnings per share (15 cents versus 10 cents).
- 3.9.2.3. Achieve superior asset and earnings growth rates.

If one assumes that these growth rates will continue then the ungeared firm will double in size in 14.2 years while the geared firm will double its size in only 8.2 years.

Table 3-16
Impact of Leverage on Returns and Growth

	Ungeared Firm (assume zero debts)		Geared Firm (assume 50% debt)	
	Year 1	Year 2	Year 1	Year 2
1. Equity (1+11)	1000	1050	500	537.5
2. Debt (2+12)	0	0	500	537.5
3. Total Funds/Assets	1000	1050	1000	1075
4. Earnings before interest & tax (assume 20% on assets)	200	210	200	215
5. Interest at 10%	0	0	50	53.75
6. Earnings before Tax	200	210	150	161.25
7. Tax (assume 50% rate)	100	105	75	80.625
8. Earnings after Tax	100	105	75	80.625
9. Available for dist.	100	105	75	80.625
10. Dividends (assume 50% payout)	50	52.5	37.5	40.3125
11. Retained earnings	50	52.5	37.5	40.3125
12. Additional debt to maintain ratio	0	0	37.5	40.3125
13. Total funds reinvested	50	52.5	75	80.625
14. Asset growth rate	-	5%	-	7.5%
15. Return on Investment (before tax)	20%	20%	20%	20%
16. Return on Investment (after tax)	10%	10%	10%	10%
17. Earnings per share (assume R1 shares)	10¢	10.5¢	15¢	16.125¢
18. Return on Equity (8+1)	10%	10%	15%	15%
19. Earnings per share growth rate	-	5%	-	7.5%

A further advantage possessed by the geared firm is that it is able to use debt as a competitive weapon. Table 3-17 illustrates this position based on the data in Table 3-16. If the management of the geared firm believes that their shareholders require a 10 percent return on equity it is possible for management to lower prices, increase marketing expenditure or use the "competitive funds" so released in other areas.

Table 3-17
Competitive Funds Released by Use of Debt

	Ungeared Firm	Geared Firm	Competitive Geared Firm
1. Equity	1000	500	500
2. Debt	0	500	500
3. Total Assets/Funds	<u>1000</u>	<u>1000</u>	<u>1000</u>
4. Earnings before interest and tax (assume 20%)	200	200	150 (R50 avail.)
5. Interest at 10%	0	50	50
6. Earnings before tax	200	150	100
7. Tax at 50% rate	100	75	50
8. Earnings after tax	100	75	50
9. Return on Equity (8+1)	10%	15%	10%

The competitive funds released by the competitive, geared firm are R50 in this case as the competitive, geared firm is able to provide its shareholders with the desired 10 percent return and have R50 available prior to the calculation of earnings before interest and taxes.

It should be noted that the improved return on equity and earnings per share performance of a geared firm will be taken into account by the sophisticated investor. Such an investor would require the improved returns to compensate for the added financial risk of the geared firm. However, the basic hypothesis should still hold, mainly, that geared firms should produce improved return on equity *ceteris paribus*. The South African findings in this regard are confined to the study by Bethlehem who has found that no significant relationship between gearing and return on equity for South African firms exists. This finding holds for both boom and recessionary economic conditions.

3.9.3. Improvement of Operations

The firm using the external acquisition route to achieve growth is likely to attempt to improve performance through improved management systems and controls and in extreme cases, by replacing management. The acquiring firm will either seek to purchase successful firms which will require relatively little effort by the acquiring firm's management - or it will purchase ailing firms where the acquiror will hope to employ its managerial skills to improve performance. The choice between successful firms and ailing firms will depend partly on the rate of acquisition. Clearly, if the pace of acquisition is high, and

if those acquisitions are expected to make an immediate impact on earnings per share, then these firms must have positive earnings. Furthermore, the more rapid the pace of acquisition, the less time management will have to assist in the turnaround of ailing firms. Therefore acquisitions which will require limited managerial attention and inputs from the parent firm are likely to be sought where a rapid acquisition programme is planned.

The so-called "strippers" are likely to be interested in firms which are in "trouble" but which possess a core of profitable operations. The major objective in this case would be to isolate and keep the profitable area and sell the unprofitable and weak areas. The strategy of Abercom limited appeared to follow this route during the early 1970s. The decision to acquire ailing firms will require an appreciation of the managerial effort required to turn the firm around.

It would appear the most active acquiring firms prefer to take the first route, namely, the acquisition of successful firms and then to retain the existing management.

Judelson, President of Gulf and Western stated his view as follows:

"Good acquisition oriented companies make the presence of sound management a prerequisite to almost any merger. The few exceptions to this rule occur in cases where potential is extremely great - and even then there must be a supply of good lower-level managers to offset any weaknesses at the top."105

It would seem that the management of the acquiring firm has relatively little opportunity to make significant improvements to performance by changing operations and increasing efficiency. Blair believes that this inability to influence the efficiency of operations is particularly true for the unrelated type of acquisition and that conditions for improvement favour the vertical or horizontal type of acquisition:

"Of all types of merger activity conglomerate acquisitions have the least claim to promoting efficiency in the economic sense. The lower costs that might result in a horizontal acquisition from the pooling of skills and know-how gained in the production of the same product from different facilities are absent. Likewise the conglomerate acquisition affords little opportunity for the closing down of the less efficient facilities and the centralization of production in the more efficient. Similarly, the gains in a vertical acquisition which might result from a more logical and orderly arrangement of facilities employed in the successive stages of the production process are not present. Because what is involved in the production of unrelated products the conglomerate acquisition provides few opportunities for the securing of economic efficiencies."¹⁰⁶

This view is open to some criticism in that there are likely to be certain areas where efficiency may be improved even if the actual production process is unrelated. Blair's perception of diversification leans toward the economist's definition discussed earlier in this chapter and suffers from the fact that management appears to view diversification differently. Turner has suggested that significant

opportunities for improved operating may exist for the conglomerate type of merger. He states:

"Conglomerate acquisitions involving no significant economic relationships have been relatively infrequent as compared to those that 'fit' the operations of the acquirer in some tangible respect. Companies looking for new lines of business tend to buy into those fields with which they have at least some degree of familiarity, and where economies and efficiencies from assimilation are at least possible."¹⁰⁷

The economies and efficiencies which may arise include the provision of capital, improved managerial incentive and controls and information systems. Kitching believes that the provision of needed funds is probably the most important advantage flowing from a merger.¹⁰⁸ Lynch however, argues that the human element may be the single most important when he states:

"...it will be concluded that for the acquisitive conglomerate it is the knowledge, the expertise, the personnel, or in general the specialized human resources which play the more important role.... All too often, it seems studies of merger activity have ignored the power and the importance of the human element, the quality of managerial and technical expertise. Emphasis has been placed on the other factors of production. These factors are viewed as inflexible quantities whose possible interactions are both known and predetermined. Thus, a merger may affect efficiency if it changes the conditions which govern these interactions."¹⁰⁹

The above section has examined the theory which relates to the performance of related and unrelated diversification using the external or acquisition route. The objective has been to isolate the key factors which are believed to be the most important influences on performance of firms which have selected this strategy to achieve their objectives. The existing evidence implies that the major benefits arising from a strategy of "external development" lie in the area of financial performance. It would appear that firms have been able to show rapid increases in earnings per share as a result of their acquisitions and in many cases the earnings per share performance has resulted in increased market value. However, the ability of these firms to maintain these high market values over the long term is questionable. It appears that improved performance through operational changes is limited, and that the benefits so arising decline as the degree of relatedness to the "core skill" of the parent is reduced. The theory further suggests that operational efficiencies are more likely to occur where the acquisition is regarded as being "vertically" or "horizontally" orientated. However, the impact of a changed managerial climate, introduced by the possibly more aggressive parent, may have an impact on operating performance.

One important influence which has not been discussed in this chapter or section has been the theory relating to

the impact of size or acquisition performance. Apart from the study by Lipworth and Strebel quoted above, who found that size does not play an important role in acquisition performance, relatively little research, both in more developed and less developed economic environments, has been carried out. The industrial policy of many countries incorporates size as a major criterion yet the performance of firms of differing sizes in the developing economies has not been well documented.

The following section will examine the empirical, studies concerned with the external route to diversified operations which have been undertaken. Before moving on to the topic of size and performance which is of importance for firms which have adopted either of the two expansion strategies.

3.9.4. External Strategy Performance Findings

The studies of the performance of the externally orientated, acquisitive, conglomerate-type firms that will be discussed here are those of O'Hanlon, Lynch and Rumelt.

3.9.4.1. O'Hanlon

This study was a special research project carried out on the "Fortune 500".¹¹⁰ Two questions were analysed. The first was concerned with the number of industries

which each firm operated in and secondly, the relationship between diversification and performance. O'Hanlon's study followed the methodology adopted by Gort in that the Standard Industrial Classification Manual (SIC) was used as the basis for measuring diversification. It will be remembered that Gort's study which was discussed earlier in this chapter, found no significant relationship between performance and diversification. However, Gort's study was concerned with growth in assets and return on equity while O'Hanlon focussed on earnings per share. O'Hanlon finds that conglomeration was not as widespread as he had expected. He finds for example, that 102 firms, comprising some 20 percent, could still be classified as single category firms. The 500 firms and their distribution according to SIC categories is given in Table 3-18 below.

O'Hanlon classified firms which operated in 8 or more categories as "conglomerates" and on this basis, 46 firms could be so classified. O'Hanlon's sample is given in Table 3-19. To provide an answer to the question as to the relationship between diversification and compounded growth in earnings per share a correlation analysis between 1956 and 1966, was performed. In O'Hanlon's words:

"The answer to the question is surprisingly negative; the coefficient of correlation turns out to be 0.086, a figure that is not statistically significant. In short, there isn't any relationship to speak of between diversification and earnings growth.

The median growth rate for companies in eight or more categories is 5.86 percent a year. By contrast, the median for the least diversified, or single category companies, is 6.27 percent. The median for the 500 is 6.21 percent - but none of these deviations is significant either."¹¹¹

Table 3-18

"Fortune 500: Firms by Number of SIC Classifications - 1967

Number of SIC Classification	No. of Firms
1	102
2	89
3	74
4	72
5	46
6	52
7	19
8	17
9	10
10	8
11	4
12	2
13	2
14	1
17	1
18	1

Source: O'Hanlon, Thomas, "The Odd News About Conglomerates," Fortune, 15th June, 1967. Reprinted in The Conglomerate Commotion, edited by the Editors of Fortune, The Vicking Press, New York, 1970, page 13.

Table 3-19

O'Hanlon Study of Conglomerate Performance in
Earnings Per Share - 1956-1966

Company	Categories	Average Growth in EPS 1956-66 (Percent)
Allied Chemical	9	3.61
American Cynamid	9	4.9
American Machine and Foundry	10	5.35
Armstrong Cook	8	8.63
Bendix	10	3.17
Borden	9	5.86
Borg-Warner	12	2.28
Brunswick	11	(7.48) *
Castle & Cooke	8	5.71
Chrysler	7	22.37
Consolidated Electronics	8	2.08
Dow	10	6.15
Du Pont	9	0.02
Eagle-Picher	8	1.79
Eltra	11	19.44
Evans Products	8	(3.72)
FMC	10	13.37
Fairchild	8	24.54
Firestone	10	5.00
Ford	8	9.96
General Dynamics	10	3.05
General Electric	14	4.28
General Percision	8	11.12
General Tire	17	15.15
Goodrich	8	0.77
Goodyear	8	6.16
W.R. Grace	12	7.32
I.B.M.	8	20.63
I.T.T.	13	7.55
Johnson & Johnson	8	9.42
Kaiser	8	1.18
Kidde	11	4.03
Litton	18	36.53
Lockheed	10	11.80
Minnesota Mining	8	12.90
National Distillers	9	4.12
Ogden	9	1.59
Olin Mathieson	9	4.03
Rexall	10	12.43
Texas Instruments	9	26.90
Textron	13	16.15
Universal American	8	4.77

* Brackets indicate negative values.

Source: O'Hanlon, Thomas, "The Odd News About Conglomerates", Fortune, 15th June, 1967. Reprinted in The Conglomerate Commotion, edited by the Editors of Fortune, The Vicking Press, New York, 1970, page 13.

3.9.4.2. Lynch¹¹²

This study, using a vigorous definition for an "acquisitive conglomerate", analysed a sample of 28 firms. In 1967 these 28 firms produced revenues of 17.7 billion dollars, made 588 acquisitions during the six-year period 1962-1967. The financial performance of this select sample of high performance firms is outstanding. The analysis of performance covered a period of between 4 and six years. Table 3-20 contains a list of the firms analysed by Lynch with selected performance criteria.

It should be noted that Lynch's findings are in direct conflict with those of O'Hanlon's findings. O'Hanlon found no significant performance differences between those firms which he defined as conglomerates and other firms. Lynch on the other hand, finds that his conglomerates experienced very rapid earnings per share growth. His sample of 28 firms averaged earnings per share growth of 50 percent per year over the period 1962-1967. In discussing his findings, Lynch states that:

"It should be evident at this point that the 'average acquisitive conglomerate' is not like the 'average' U.S. corporation. On the dimensions of acquisition activity, expansion and performance, the acquisitive conglomerate on the average displays characteristics far exceeding minimum criteria which, in turn, significantly exceed those displayed by 'average' corporations."¹¹³

Table 3-20
Financial Characteristics of Acquisitive
Conglomerates: Lynch Study

Company	1967 Sales (\$ millions)	Average Annual Increase in Earnings per Share, 1962-67 (in percent)
Automatic Sprinkler	242	55
Automation Industries	55	65
Bangor Punta	161	19
Condec	75	43
FMC	1313	17
W.R. Grace	1576	10
Gulf and Western	645	72
Hydrometals	40	125
I.T.T.	2761	14
Kidde	424	73
Litton Industries	1562	29
LTV	1833	33
Mid-Continent	27	28
Monogram	27	91
MSL Industries	108	11
Nytronics	14	39
Occidental	826	23
Ogden	815	38
Royal Industries	60	54
Signal Companies	1505	13
Teledyne	451	93
Textron	1446	23
TRW	1041	20
Tyco Labs.	10	90
U.S. Industries	283	81
Venitron	22	51
White Consolidated	173	134
Whittaker	225	63
Average for Sample	633	50

Source: Lynch, Harry H., Financial Performance of Conglomerates, Division of Research, Graduate School of Business Administration, Harvard University, Boston, page 73.

A possible explanation for the differing research results lies once again, in the definition of a "conglomerate" firm. O'Hanlon uses the number of SIC codes in which a firm operated as the basis on which to classify firms. His findings support those of Gort, discussed earlier, which reveal no significant performance differences. Lynch's criteria are once again, more managerially orientated and classify firms according to their "style" or "pattern" of behaviour.

3.9.4.3. Rumelt¹¹⁴

This study, extending the strategic classification framework proposed by Wrigley and adopted by Channon, Dyas, Pavan and Thannheiser, which was discussed earlier, also found significant differences in performance between different strategies. Rumelt's extended classification system is the basis on which this study is based and a detailed discussion of the classification methodology follows in a later chapter.

In order to facilitate the review and comparison of the research findings of the studies which have examined external acquisitive corporate growth performance, Rumelt's findings on the performance of acquisitive conglomerates is presented in Table 3-21 below.

Table 3-21

Acquisitive Conglomerate Performance Compared to All
Companies in Sample 1951-1969: Rumelt Study

	Average Growth in Sales	Average Growth in Earnings	Average Growth in EPS
Acquisitive Conglomerates	20.64	18.64	9.46
Average of Sample	9.01	8.72	6.57

Source: Adapted from; Rumelt, Richard P., "Strategy, Structure and Economic Performance", Doctoral Dissertation, Graduate School of Business Administration, Harvard University, Boston, 1972, page 166.

Rumelt's findings indicated significant performance difference between acquisitive conglomerate firms and the other firms in the sample. The differences between the means are all statistically significant at the 0.001 level.

3.9.5. Summary of Findings

An additional study which is of particular interest in that it contains performance data on diversified firms during the period 1972-1976 is that provided by a Harvard Business School Note.¹¹⁵ Although the sample is defined as "widely diversified" firms, all the firms have achieved their diversified states through a process of acquisition and merger. This data is the only published data which is comparable to the data analysed in the present study.

O'Hanlon's study was based on the period 1956-1966, the Lynch study on the period 1962-1967 while Rumelt's research covered the two decades 1950-1970. The relevant data are summarized in Table 3-22.

Table 3-22

Historic Financial Performance of Selected Widely
Diversified Companies - 1972-1976

Company	Return on Invested Capital(%)	Return on Equity (%)	Average Com- pounded Sales Growth (%)	Average Com- pounded EPS Growth (%)
Minnesota Mining and Manufacturing	17.2	19.1	12.7	9.4
General Electric	14.5	17.9	8.0	10.7
Textron	12.3	15.4	5.9	5.5
Union Carbide	11.8	16.3	11.3	17.0
Eltra	11.6	13.4	10.6	10.1
TRW	11.4	16.3	10.2	6.9
Northwest	11.2	39.6	6.9	31.1
White Consolidated	9.9	20.4	10.0	23.2
Sybron	9.9	12.3	9.4	6.7
General Tire	9.6	13.0	9.3	13.6
Borg-Warner	8.4	9.5	8.8	6.2
G&W	8.4	19.6	12.1	21.9
ITT	8.4	11.2	15.3	4.9
Martin Marietta	8.0	12.1	5.8	7.5
U.S. Industries	6.7	7.4	10.2	-10.7
Kaiser Industries	6.6	7.1	11.9	11.4
Westinghouse	6.6	8.2	8.9	-0.3
LTV	5.8	12.3	6.5	N.A.
AVCO	5.8	8.3	1.7	0.2
Allis-Chalmers	5.1	6.2	9.1	N.A.
Fugua	4.2	2.7	12.2	-25.6
Whittaker	3.4	2.7	2.4	-22.0
Litton	1.9	0.5	7.1	-44.1
Sample average	8.64	12.24	9.00	3.98
Standard deviation	3.64	6.72	3.22	17.32
All industry average	9.1	12.7	11.8	9.4

N.A.: Not available

Source: Adapted from: "Historic Financial Performance of Selected Widely Diversified Companies", Harvard Business School, ICH 4-378-166, page 2.

The research findings pertaining to acquisitive and diversified firms are of considerable interest for two reasons. Firstly the studies that adopted a product count method of measuring diversification revealed no significant performance differential between diversified and other, less diversified firms. This research, when combined with that of Gort, points clearly to the fact that the classification method based on product-count and number of SIC categories occupied is unable to reveal significant performance differences when traditional performance measures such as earnings and sales growth and returns on capital and equity are adopted. Secondly, the earlier, pre-1970 studies all reveal relatively high growth and return values for the acquisitive and diversified firms. Rumelt, for example, finds that his acquisitive conglomerate group outperforms the total sample by 129 percent in sales growth, by 114 percent in earnings growth and by 44 percent in earnings per share growth. The contrast between Rumelt's study and that of the Note on the Financial Performance of Selected, Widely Diversified Companies discussed above, reveals that the rate of growth has declined dramatically after 1970. This decline has been so severe that the diversified group, operating in the 1972-1976 U.S. business environment, is now below that of the all industry average.

The implications are that these firms are unable to maintain their performance in the mature economy. The relatively low economic growth experienced in the United States since 1972, primarily as a result of the oil crisis, has had a serious detrimental effect on the performance of this group of firms both in terms of growth in sales and earnings per share, and returns on capital and equity.

Despite the relatively poor performance of the diversified and acquisitive group, this strategy would appear to be superior to that of internal, new product development as revealed by Biggadike's study. The "internal development" route which requires an average of eight years before returns on investment and sales become positive and some ten to twelve years before reaching the average returns from established businesses, is clearly not attractive. An equally bleak picture exists for internal development from cash flow and market share point of view according to Biggadike. The external development route is likely to be less risky in that returns and cash flows are more certain and "closer" - the firm to be acquired has a history and reasonably accurate estimates of returns can be made. The forecasting of returns eight to twelve years in the future is clearly more risky and consequently, less attractive.

3.10 Summary

This chapter has discussed the different definitions and the conceptual problems associated with these definitions. Economists and managers appear to adopt widely differing views of what constitutes diversification and what criteria should be used to define a conglomerate. A number of independent research studies conducted in the United States and major European countries reveals consistent trend towards increased diversification. The reasons for diversification were introduced and the theory relating to entry was discussed to highlight both the difficulties and conditions which facilitate and encourage entry into new areas of operation.

The major studies which examine the performance of the strategies of internal development and external development were discussed. These studies suggest that during periods when the economy is growing, the external route provides significantly superior financial performance but that during periods of slower economic growth, the external, acquisitive firms produce below average performance. Yet, the overall impression gained is that the external route is more attractive and is likely to be preferred by management because:

- The acquisition price can be determined,
- The returns and profits can be estimated with reasonable accuracy,

- The firm to be acquired has a demonstrated performance and market record.

The internal, new product development process appears to have none of these advantages. Management is unsure of the investment that will be required to produce the required return and is afraid of being caught in a "cash trap". Furthermore, positive returns and cash flows have very long time horizons.

This chapter has provided a review of the literature and theory of corporate diversification and will serve as the research hypotheses which are developed later. These hypotheses will be based on the existing theory of corporate strategy and performance in mature, developed economies since all previous research has concentrated on firms operating in these environments. The following chapter seeks to introduce the concepts of risk and return in the context of modern portfolio theory. The studies discussed above have tended to concentrate their evaluation of performance on return and have ignored the impact of risk. The following chapter will provide a framework which will enable the financial performance of various strategies to be evaluated in terms of both risk and return.

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4. THE THEORY OF RISK, RETURN, DIVERSIFICATION AND THE CAPITAL ASSET PRICING MODEL

4.1 Introduction

Previous chapters have been primarily concerned with the various concepts and theories of corporate strategy, the development of firms over time and the identification of and evaluation of the different diversification and growth routes available to firms. The concept of corporate strategy becomes a meaningless academic abstraction unless it can be used operationally to achieve some purpose. Financial theorists maintain that the objective of the firm is to maximize shareholder wealth. This implies providing the shareholder with the minimum of a satisfactory or "required" return on his investment. Most discussions of managerial decision making focus on the concept of return. Return is commonly referred to in terms of profits, return on investment, equity and similar measures. Yet any analysis of return is of limited value unless the return provided on an investment is measured against the risk of that investment. It is impossible to meaningfully evaluate the return on an investment without assessing the risk of that investment.

The research into the various alternative diversification routes in the previous chapter pay scant attention to the concept of risk. Similarly, the theories of corporate

strategy mention risk but make no attempt to measure this important aspect of decision making. Corporate strategy should, in its simplest sense, direct the unique competences of the firm towards opportunities in the environment, in order to provide a certain minimum return, for a given level of risk. The strategy must seek to maximize the return at a certain stipulated level of risk, or it must seek to reduce the risk while holding the return at a certain level. A review of the literature in the field of corporate strategy reveals that theorists have made little attempt to quantify risk in their research. What little research has been conducted in this area has been undertaken by theorists from the field of finance.

This research seeks to apply the well developed theory of risk measurement and assessment to the field of corporate strategy. In order to achieve this objective this chapter will introduce theories and research drawn from the field of financial economics. This chapter will provide the basis for the evaluation of corporate strategies in terms of their impact on the risk profile of the firms included in the study.

4.2 Risk, Risk Aversion and Portfolio Diversification

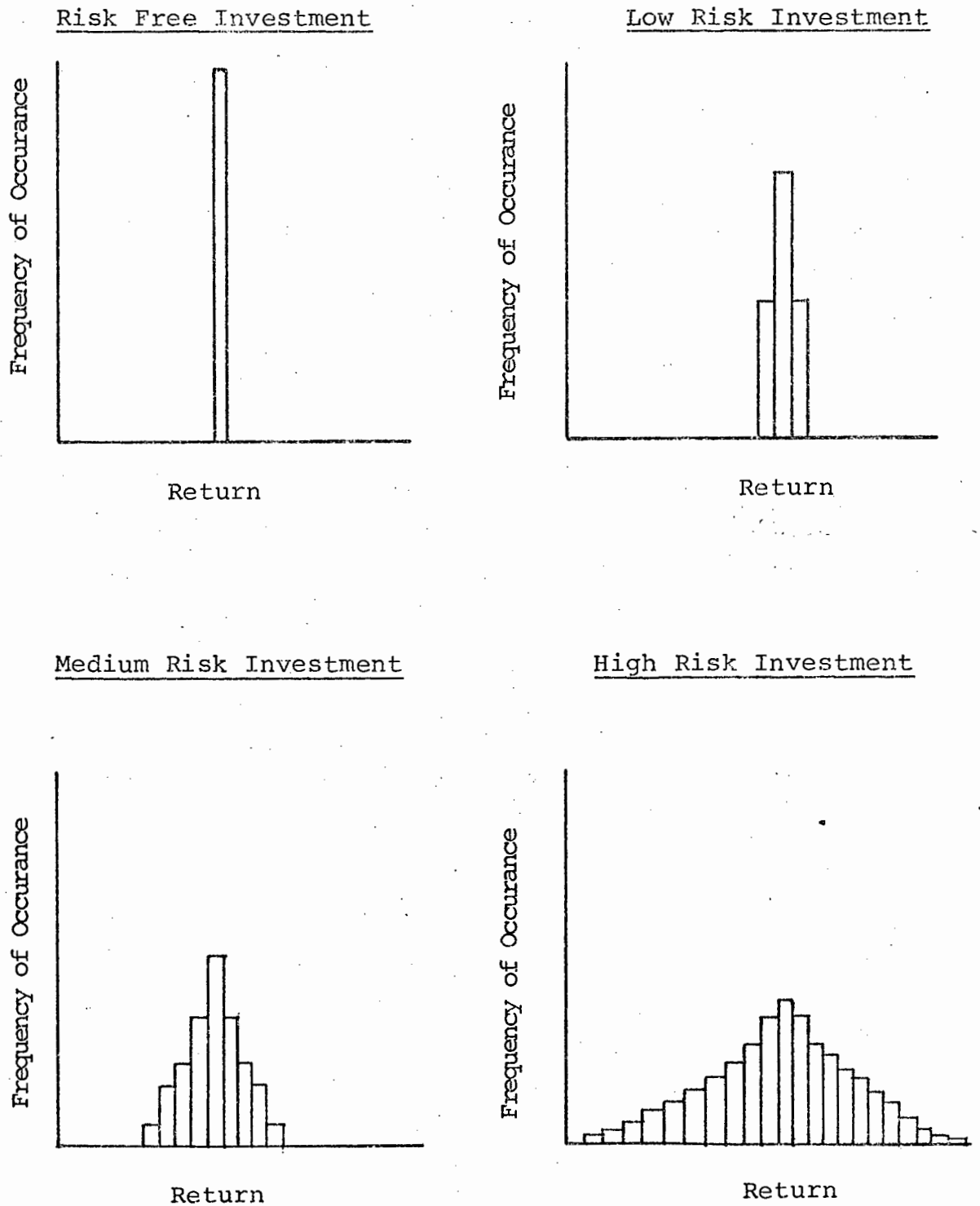
4.2.1 Risk

As stated above, the theory and quantification of risk has been developed in the field of financial economics.

Consequently, risk has been analysed from the perspective of the individual investor. Webster defines risk as "the chance of injury, damage, or loss."¹ This definition is qualitative in nature and will be interpreted subjectively by different individuals. Such interpretations will not be concise. Modigliani and Pogue refer to this problem as follows; "Not everyone agrees on how to define risk, let alone how to measure it."² This lack of definitional precision has obvious disadvantages and thus a quantitative surrogate has been developed.

In terms of an investment, risk of "damage or loss" refers to the chance that a loss or unsatisfactory return will be realized since the future prices and dividends from that investment are unknown in advance. Thus risk refers to either a capital loss or a return below that expected. Thus, from a financial point of view, risk refers to the probability distribution of an investment's returns. Risk can therefore be defined in statistical terms as the variability of returns, or the dispersion of positive and negative deviations from the expected return. Obviously, an investment with a wide range of possible returns has a higher risk than an investment with a narrow range of possible returns. Figure 4-1 illustrates four investments with differing levels of risk as defined above.

Figure 4-1

Risk Defined as the Variability of Returns

An investor is likely to perceive risk as the probability that his investment produces returns that are damaging and thus are below his expectations. In addition he would analyse an investment's past return behaviour if such information were available and this is likely to influence his estimate of the investment's risk. A further requirement would be that the distribution of returns so measured would not change significantly over time and that the distribution of returns is reasonably symmetric and is not "skewed" either to the left or the right. Fortunately empirical research has shown that distribution of portfolio returns are not significantly skewed³ and do not change significantly over time.⁴ These problems are discussed in more detail later in this chapter. Figure 4-2 illustrates the returns from a 100 security portfolio over a 25 year time span.

Figure 4-2

Rate of Return Distribution for a Portfolio of One Hundred Securities. (Equally Weighted).

January, 1945 -- June, 1970

Range			Frequencies	
1	-13.6210	-12.2685	1	*
2	-12.2685	-10.9160	2	**
3	-10.9160	-9.5635	2	**
4	-9.5635	-8.2110	3	8**
5	-8.2110	-6.8585	8	8*****
6	-6.8585	-5.5060	9	*****
7	-5.5060	-4.1535	17	8*****
8	-4.1535	-2.8010	18	*****
9	-2.8010	-1.4485	27	*****
10	-1.4485	-0.0960	28	*****
11	-0.0960	1.2565	30	*****
12	1.2565	2.6090	50	*****
13	2.6090	3.9615	35	*****
14	3.9615	5.3140	33	*****
15	5.3140	6.6665	18	8*****
16	6.6665	8.0190	14	*****
17	8.0190	9.3715	4	****
18	9.3715	10.7240	2	**
19	10.7240	12.0765	2	8*
20	12.0765	13.4290	3	***

Scaling Factor = 1

Average Return = 0.91% per month

Standard Deviation = 4.45% per month

Number of Observations = 306

Source: Modigliani, Franco, and Pogue, Gerald A., "An Introduction to Risk and Return". Financial Analysts Journal, March-April, 1974. Page 72.

Modigliani and Pogue have noted as follows:

"If risk is defined as the chance of achieving returns less than expected, it would seem logical to measure risk by the dispersion of the possible returns below the expected value. However, risk measures based on below-the-mean variability are difficult to work with and are actually unnecessary as long as the distribution of future returns is reasonably symmetric about the expected value... Empirical studies of realized rates of return on diversified portfolio show that skewness is not a significant problem. If future distributions are shaped like historical distributions, then it makes little difference whether we measure variability of returns on one or both sides of the expected return. If the probability distribution is symmetric, measures of the total variability will be twice as large as measures of the portfolio's variability below the expected return. Thus if total variability is used as a risk surrogate, the risk rankings for a group of portfolios will be the same as when variability below the expected return is used. It is for this reason that total variability of returns has been so widely used as a surrogate for risk."⁵

The measure most commonly adopted to measure this variability of return is the standard deviation.⁶

4.2.2 Risk Aversion

A number of characteristics of investment, particularly in the ordinary shares of a business firm, combine to make the investor "risk averse". These are:

4.2.2.1. "The Gambler's Ruin" Outcome

4.2.2.2. Consumption Effects, and

4.2.2.3. Liquidity Preference

The "Gambler's Ruin" outcome refers to the situation where the individual can, as a result of a "disaster", be barred from reentering the "game". This would occur where an investor would lose everything and therefore has no reserve to reserves to enable him to reinvest and recover from his misfortune.

Consumption effects refer to the likelihood of the investor to consume part of his income over time and thus such an investor would require some measure of return. Thus a high return and high risk investment opportunity may not be as attractive as an alternative low risk, low return investment which is more likely to produce stable returns.

Risky investments will, by definition, fluctuate about some expected or average value but the investor will attempt to avoid those investments which although marketable, may be at a low price or value when cash is required. Thus from a liquidity point of view, a shareholder will prefer an investment which will reduce the probability of having to liquidate the investment during a period of depressed value quite apart from the more attractive longer term prospects of a risky, volatile investment.

Thus, these three factors contribute to the average investor's risk averse viewpoint and result in his attempts to alter his levels of return and risk to suit his requirements.

While it appears to be true that investors are risk averse, these same investors can be observed investing in very high risk ventures on occasion. A casual stroll near bookmakers at a horse racing meeting will serve to verify this statement. It would seem that investors will undertake high risk if they are compensated for it. Brealey, in support of this hypothesis states that, "The fact that common stocks became tended over a long period to give a higher rate of return than bonds supports this belief."⁷ Two further empirical studies have confirmed the fact that high returns are associated with high risk. Douglas examined returns on a sample of 616 shares over the period 1946 to 1963.⁸ The second study was Arditti's often quoted study of the Standard and Poor Composite Index.⁹ Both studies found a strong, positive correlation between price variation and rates of return. Arditti's study raised an additional important consideration regarding the skewness of the distribution of the returns for individual shares. Shares are likely to have a positive skewness due to the fact that it is possible to obtain a return in excess of 100 percent. While the loss in the event of "disaster" is bounded by a minus 100 percent. One cannot lose more than 100 percent but can gain over 100 percent. Thus a positive bias is introduced. In summary however, high rates of return are associated with higher risks and investors will attempt to use portfolio diversification to optimize their risk/return situation.

4.3 Portfolio Diversification

As stated above, investors are believed to be risk-averse. Portfolio theory developed by Markowitz, is based on this premise and seeks to provide the investor with the tools necessary to reduce risk while providing a certain minimum return.¹⁰

This can be demonstrated by an example. Assume two shares, Firm I which markets ice cream and Firm S which markets soup. The sales, cash flows and profits of both firms during periods of varying weather conditions result in the returns shown in Table 4-1.

Table 4-1

Hypothetical Returns Under Varying Weather Conditions

	Firm I R(I) Return in %	Firm S R(S)
Sunny Conditions	33	-9
Normal Conditions	12	12
Cold Conditions	<u>-9</u>	<u>33</u>
Standard Deviation of Returns ()	.21	.21

The return on a portfolio can be defined as follows:

$$E(R_p) = W_a E(R_a) + W_b E(R_b),$$

Where; $E(R_p)$ = expected return on portfolio P,

W_a = proportion of funds invested in investment A,

$E(R_a)$ = expected return on investment A.

If the investor were to invest in a portfolio consisting of 50 percent in Firm I and 50 percent in Firm B, the expected return can be calculated by substituting the values in Table 4-1 into the formula above:

$$E(R_p) = .5(R_I) + .5(R_S)$$

By diversifying in this manner, the investor will have reduced his risk (defined as variability of returns) no matter what weather conditions prevail. The expected return from the portfolio consisting of 50 percent invested in both Firm I and Firm S is as follows:

Sunny conditions return = $.5(.33) + .5(-.09) = 12$ percent,

Normal conditions return = $.5(.12) + .5(.12) = 12$ percent

Cold conditions return = $.5(.09) + .5(.33) = 12$ percent

Since the portfolio will have a standard deviation of zero, whereas each firm has a standard deviation of .21, the variability of return is eliminated and the portfolio will yield 12 percent whereas investment in any one of the firms will have produced a return ranging from +33 percent to -9 percent. The portfolio has a return of 12 percent with no variability and is thus very low risk. The total elimination of risk in this example is possible since there is a perfect negative correlation between the two firms under consideration. Obviously in practice this perfect negative correlation is rare but does occur. Gold investments for example, often move up when other investments

fall and vice versa. Malkiel states:

"As long as there is some lack of parallelism in the fortunes of the individual companies in the economy, diversification will always reduce risk...where there is a perfect negative relationship between companies' fortune (one always does well while the other does poorly), diversification can totally eliminate risk. Of course, there is always a rub, and the rub in this case is that the fortunes of most companies move pretty in tandem. When there is a recession and people are unemployed, they may buy neither summer vacations or umbrellas. Therefore one should not expect in practice to get the neat kind of total risk elimination (just shown above). Nevertheless, since company fortunes don't always move completely in parallel, investment in a diversified portfolio of stocks is likely to be less risky than investment in one or two single securities."11

Since the returns on investment are typically not perfectly negatively correlated but do exhibit degrees of covariance, measurement of the risk of a portfolio is more complicated. Risk of a portfolio of n assets as measured by the standard deviation, is defined as follows:

$$\sigma_p = \sqrt{\sum_i^n \sum_j^n W_i W_j \sigma_{ij}}, \text{ and where } n = 2;$$

$$= \sqrt{W_i^2 \sigma_i^2 + W_j^2 \sigma_j^2 + 2W_i W_j r_{ij} \sigma_i \sigma_j}$$

where;

σ_p = standard deviation of the portfolio's rate of return,

σ_i = the variance of returns of the i th asset (equivalent to the standard deviation),

W_i = the proportion of funds invested in the i th asset.

r_{ij} = the correlation between assets i and j

By applying these formulae to a mix of investments, the individual is able to improve the risk/return relationship of his portfolio. An example of a two share situation will serve to illustrate the ability of "Markowitz diversification" to reduce risk and obtain the same return or improve the return while reducing the risk. See Table 4-2.

Table 4-2

Risk and Return of Hypothetical Shares A and B

Assets	Expected Return E(R) in percent	Risk, σ in percent
Share A	20	7.56
Share B	10	3.75
Correlation between A and B	-.5	

Table 4-3 provides the format to analyse the return and risk profile as a result of varying the proportion or weight invested in each share.

Table 4-3

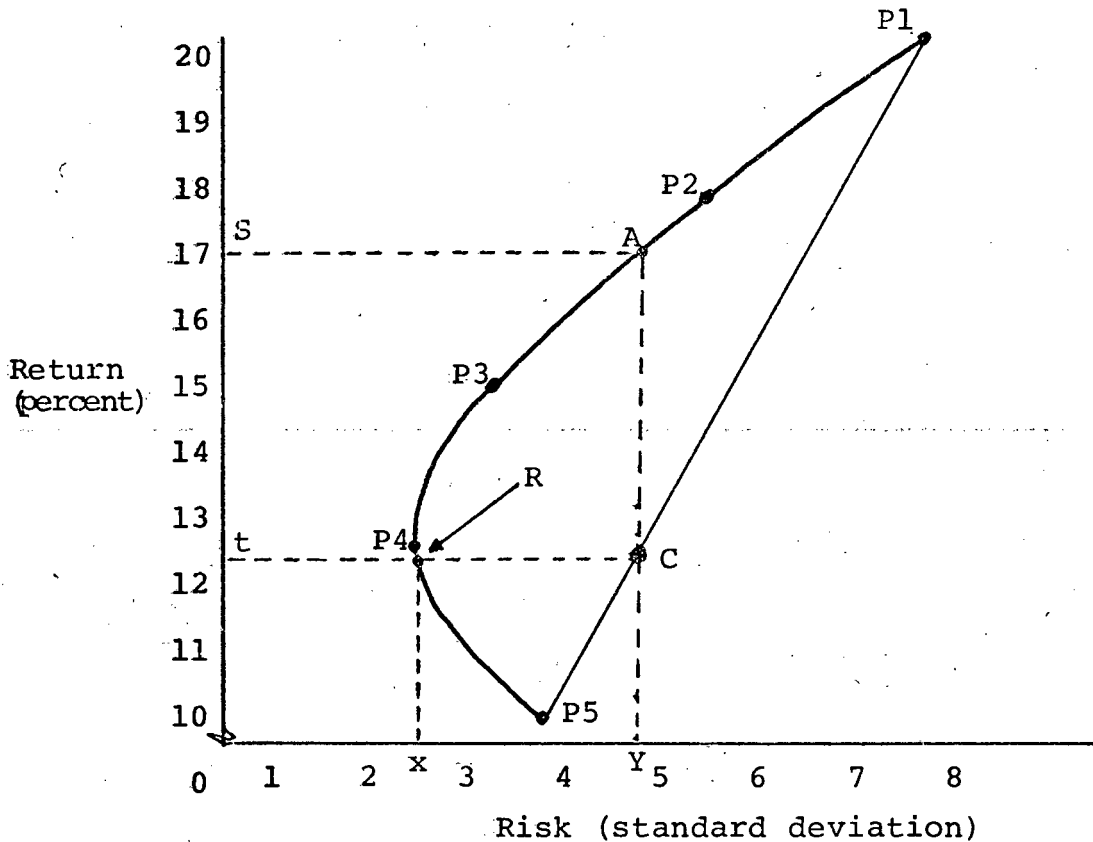
Calculation of The Return and Risk of Different
Portfolios of Shares A and B

Portfolio	Production of Investment in		Return on the Portfolio (%) R_p	Risk of the Portfolio σ_p
	Share A	Share B		
P1	100%	0%	20.0	7.56
P2	75	25	17.5	5.264
P3	50	50	15.0	3.2735
P4	25	75	12.5	2.483
P5	0	100	10.0	3.75

The return and risk of the portfolios in Table 4-3 are plotted in Figure 4-3. If the points representing each portfolio are joined, the line P4, P3, P2, A, and P1 is obtained. This is known as the "efficient frontier".

Figure 4-3

Graphical Representation of the Risk and Return of
Hypothetical Portfolio of Shares A and B



It should be noted that the shares A and B are negatively correlated as $r = -.5$. If they were perfectly correlated the returns and risk would lie along the line P_5CP_1 . Thus by employing negatively correlated shares the investor is able to reduce his risk/return situation. Any point in the area bounded by the area $P_1CP_5P_4P_3P_2$ is superior in risk/return terms to any point along the line P_1CP_5 . Such points, which refer to portfolios are said to be "dominant". For example, Point A, which lies on the

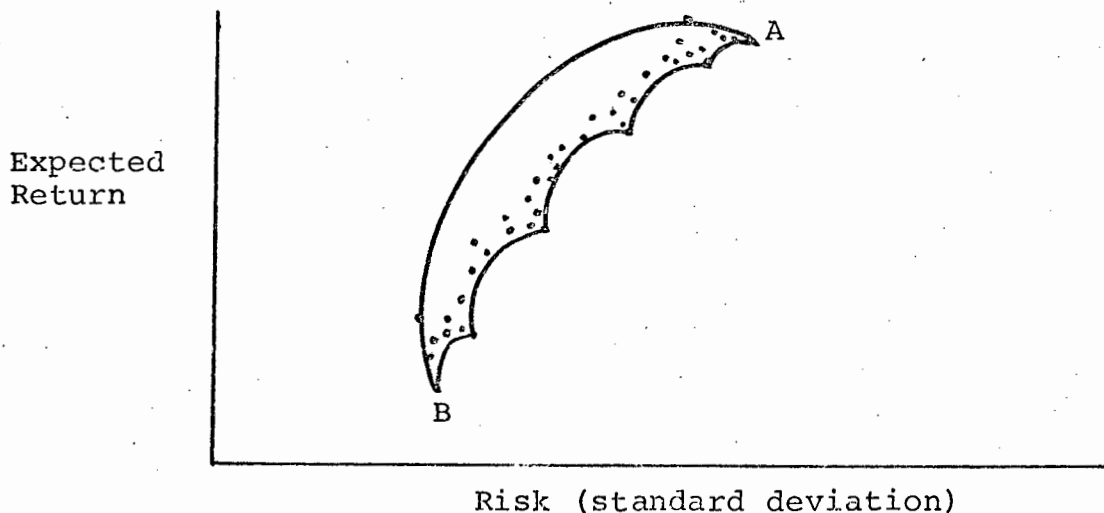
"efficient frontier" is dominant to portfolio C since it yields the increased return OS-OT for the same risk Y. Similarly, R is superior/dominant to C since it yields the same return T for reduced risk OY-OX. Thus an efficient portfolio can be defined as a combination of assets which has:

1. The maximum expected return in its risk class, or
2. Provides minimum risk at its level of expected return.

Thus, because of the less than perfect correlation between investments, portfolios can be constructed which yield more efficient combinations of risk and return than that provided by individual investments. There are obviously many different investment opportunities available to an investor and the combination of these investments will yield an efficient frontier in relation to the securities available. Figure 4-4 depicts such an efficient frontier.

Figure 4-4

The Efficient Frontier and Various Investment Opportunities

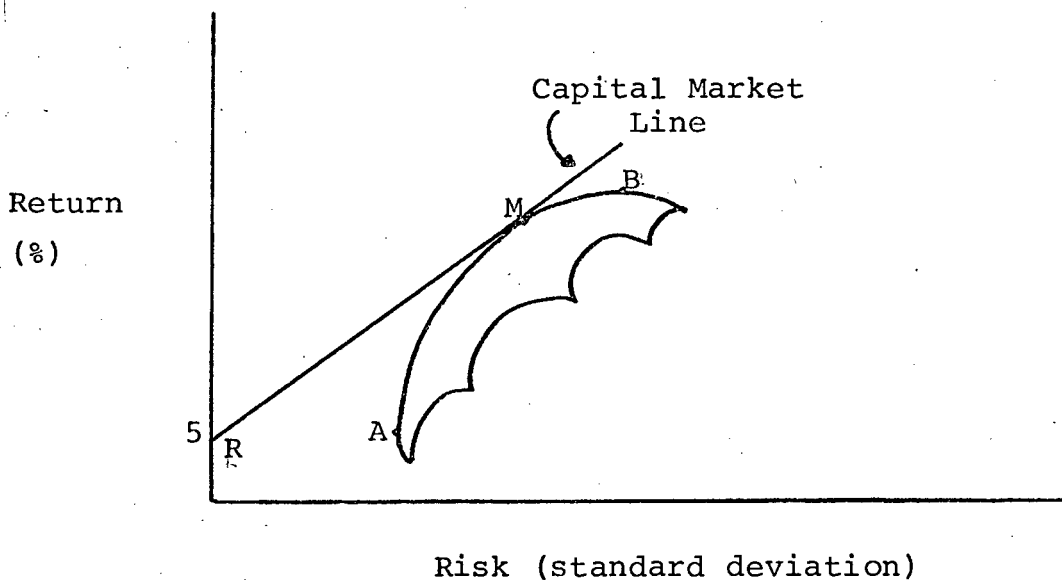


4.4. The Capital Market Line

In Figure 4-4 the line AB is the efficient frontier. Figure 4-5 represents the investment, borrowing and lending opportunities in equilibrium if investors were all diversified and had the same expectations.

Figure 4-5

The Formation of the Capital Market Line



It can be shown that investors would borrow at rate R and that M represents the "market portfolio". The line extending from R , which represents the risk free asset (it will be noted that this asset has zero risk and is analogous to Government Bonds), and passing through the market portfolio M , where it is tangent to the efficient frontier, is known as the "Capital Market Line".

The capital market line is defined as "a linear relationship between expected return and total risk on which only portfolios will lie."¹² A further important development from this analysis is concerned with the extent to which risk can be eliminated. As shown above, risk can be reduced by investment in a diversified portfolio. It has been shown however, that most of the benefits of diversification are obtained after only moderate diversification. "Naive" diversification implies that a portfolio of 100 shares is 10 times more diversified than a portfolio of 10 shares. However, this is not true. As the number of shares included in the portfolio increases, the level of risk decreases toward (and eventually becomes asymptotic to) the overall level of risk in the market. This overall level of risk is known as the "systematic" level of risk. Evans and Archer analysed the effect on risk of a naive diversification strategy.¹³ They analysed 470 shares listed on the New York Stock Exchange over the period 1958 to 1967. Sixty randomly selected and differing size portfolios of shares were constructed. Thus 60 portfolios of 1 share, 60 portfolios of 2 shares, 60 portfolios of 3 shares and so on, up till 60 portfolios of 60 shares, were constructed. The standard deviation of each of these portfolios was then calculated. Their findings show that randomly constructed portfolios of between 10 and 15 shares will reduce risk

to the "systematic" level and that further diversification has relatively little impact on risk.

In a similar, but different study, in that portfolios were constructed on the basis of the Standard and Poor Stock Quality Ratings, Wagner and Lau also tested for the effect of diversification on risk.¹⁴ As the number of issues included in the portfolio was increased, the study showed that approximately 40 percent of the risk (defined as standard deviation), was eliminated. Table 4-4 shows the results based on portfolios consisting of A+ quality shares. It will be noted that the standard deviation falls rapidly at first and then "flattens out".

Table 4-4

Standard Deviation and the Number of
Issues for Portfolios of A+ Shares

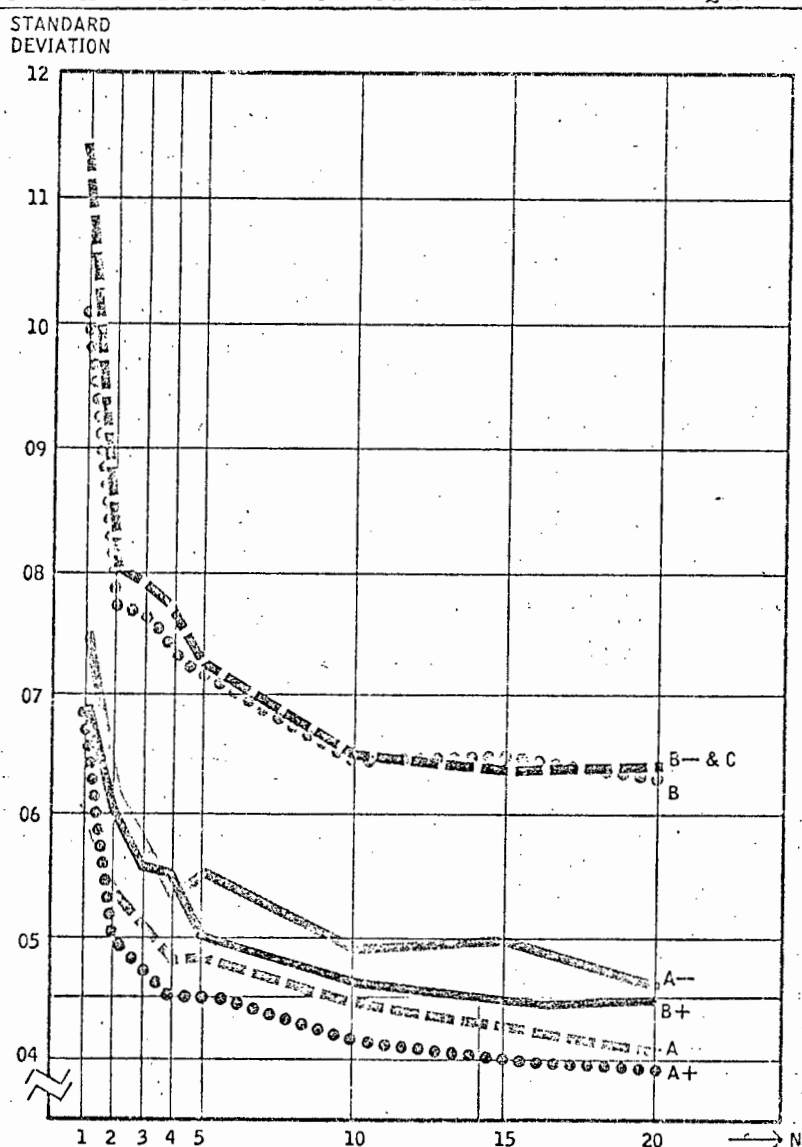
Number of Issues	Standard Deviation Monthly returns from June 1960-May 1965	Standard Deviation Monthly returns from June 1960-May 1970
1	0.065	0.070
2	0.047	.050
3	0.050	.048
4	0.045	.046
5	0.043	.046
10	0.040	.042
15	0.038	.040
20	0.038	.039

Source: Wagner, W. H., and Lau, S. C., "The Effect of Diversification on Risk", Financial Analysts Journal, November-December 1971, page 49.

graphical representation of the data in Table 4-4 and the relationship between the standard deviation and the number of shares in the portfolio for the remaining share quality groups is given in Figure 4-6. It should also be noted that Wagner and Lau randomly selected portfolios of twenty shares from each of the quality groups, performed the necessary computations, and then repeated the exercise ten times to reduce dependence on single samples and then averaged the results.

Figure 4-6

The Relationship Between Standard Deviation and the Number Of Shares in a Portfolio for Various Share Quality Ratings



Source: Wagner, W.H., and Lau, S.C., "The Effect of Diversification on Risk", Financial Analysts Journal, Nov.-Dec., 1971, page 50.

Wagner and Lau also measured the extent of the correlation between each portfolio with the market with an unweighted index of all New York Stock Exchange shares. Their findings are presented in Table 4-5. It will be noted that a portfolio consisting of twenty shares has a correlation coefficient of $r = 0.89$ and that the degree of correlation rises rapidly at first from $r = 0.54$ to $r = 0.79$ as the portfolio increases from one to five shares but that to achieve $r = 0.89$, an improvement of 13 percent, the number of shares in the portfolio increases from five to twenty - an increase of 300 percent.

Table 4-5

Number of Shares in Portfolio and Correlation with
Market Index

Number of Shares in Portfolio	Correlation (r) with Market Index	Coefficient of determina- tion (r^2)
1	0.54	0.29
2	0.63	0.40
3	0.75	0.56
4	0.77	0.59
5	0.79	0.62
10	0.85	0.72
15	0.88	0.77
20	0.89	0.80

Source: Calculated from, Wagner, N.W., and Lau, S.C., "The Effect of Diversification on Risk", Financial Analysts Journal, November-December 1971, page 53.

In discussing their findings Wagner and Lau state

"The correlation (between the portfolio and the market index) rises as the number of holdings increases... Portfolios of a small number of securities are very undiversified, whereas portfolios of as few as fifteen to twenty have a strong relationship to the market index. A little diversification goes a long way."¹⁵

Their study provides strong empirical support for the effectiveness of portfolio theory. Wagner and Lau continue:

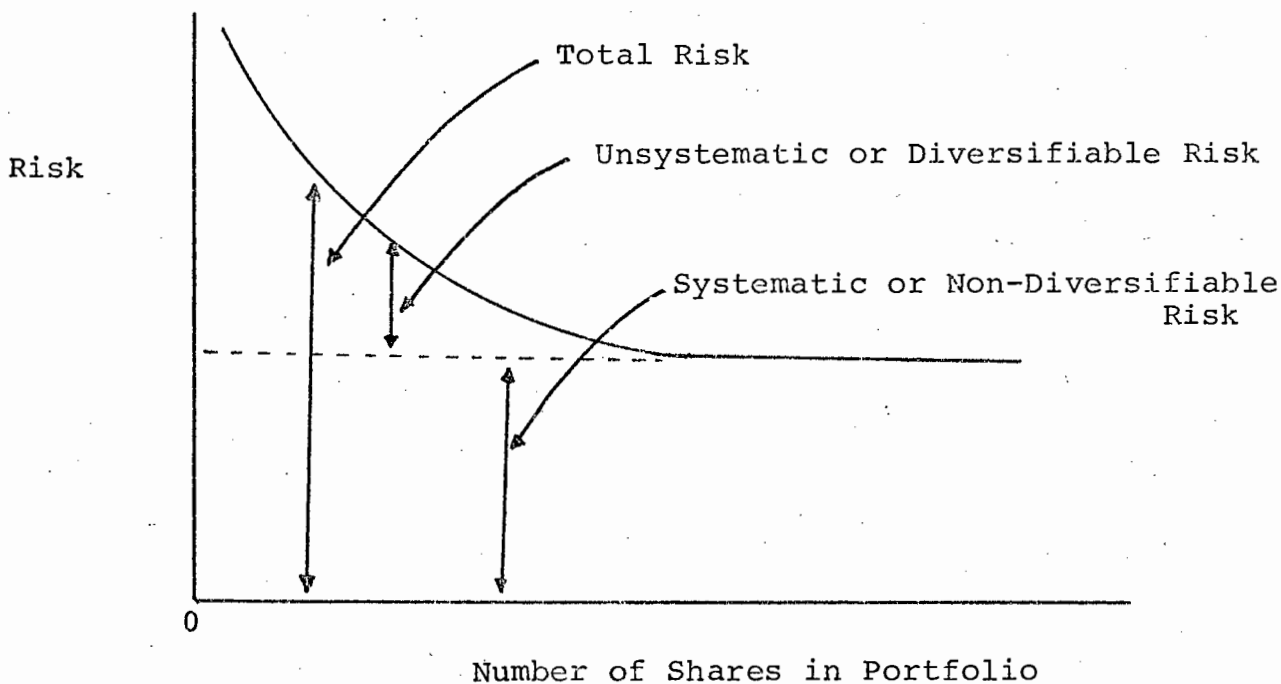
"The most important concept demonstrated by this study is how diversification can be used to offset the individual riskiness of stocks held. As a result, portfolios of large numbers of higher risk securities may be less risky than portfolios consisting of small numbers of low risk stocks, yet earn a substantially higher rate of return."¹⁶

4.5 Systematic and Unsystematic Risk

The empirical studies discussed above show that while a certain proportion of risk can be reduced or even eliminated through diversification, the remainder of the risk cannot be diversified away. That portion of risk that can be eliminated is known as "unsystematic risk" and is defined by Francis as "that portion of total risk which is unique to a firm or industry".¹⁷ He defines "systematic risk" as "that portion of total variability of return caused by factors which SIMULTANEOUSLY effect the prices of all marketable securities".¹⁸ This proposition is illustrated by Figure 4-7.

Figure 4-7

Graphical Illustration of Unsystematic and Systematic Risk



Here "unsystematic" or "diversifiable" risk is shown to decline as the number of shares and hence diversification increases. This decline eventually slows as the number of shares in the portfolio rises and becomes asymptotic to that risk which is "non-diversifiable" or "systematic" and is related to the risk of the market as a whole.

The conclusions have important implications. As Wagner and Lau have observed:

"Since unsystematic risk can be diversified away, no compensation is rewarded for bearing such risk. In other words, the return on the portfolio relates only to that risk which cannot be diversified away, that is, the systematic risk."¹⁹

Malkiel puts it this way:

"Now comes the key step in the argument. Both financial theorists and practitioners agree that investors should be compensated for taking on more risk by a higher expected return. Stock prices must therefore adjust to offer higher returns where more risk is perceived, to ensure that all securities are held by someone. Obviously, risk-averse investors would not buy securities with extra risk without the expectation of extra reward. But not all of the risk of individual securities is relevant in determining the premium for bearing risk. (emphasis added) The unsystematic part of the total risk is easily eliminated by adequate diversification. So there is no reason to think that investors will be compensated with a risk premium for bearing

unsystematic risk. The only part of total risk that investors will get paid for bearing is systematic risk, the risk that diversification cannot help."²⁰ (emphasis added)

This section has reviewed the theory of risk, return and portfolio diversification and has introduced the important concepts of systematic and unsystematic risk. It has been shown that investors are not rewarded for unsystematic risk and that this risk element can be eliminated by diversification. Investors are assumed to be diversified shareholders and thus their risk/return situation is dependant primarily on systematic or market related risk. The impact of these propositions and their relevance to the present study should be clear. Managers are expected to maximize the wealth of their shareholders and do so by maximizing share price values. These share prices are in turn determined by the perceived risk profile of the firm. Managers should thus only be concerned with attempting to reduce the "systematic risk" of their firms since "unsystematic risk" can be diversified away by rational, risk averse investors. The following section of this chapter is concerned with the theory and development of what has become known as the "Capital Asset Pricing Model".

4.6 The Theory of Capital Markets

This theory is based on the theory of portfolio analysis discussed above. Portfolio theory is concerned with the construction of efficient portfolios of risky investments. This requires an estimate of the expected return of each asset, the variance or standard deviation of the asset, and its covariance with other alternative investment opportunities. With 1000 investment opportunities it would require 501,500 statistics made up of 1000 returns, 1000 standard deviations and 499,500 covariances. Thus, due to the computational volumes required, the Markowitz portfolio model was not considered of much practical value. Sharpe however, provided a simplification which made the Markowitz model a practical possibility.²¹ Sharpe noted that since all investments or shares displayed high correlation with the market as a whole, it would be possible to measure each shares correlation with the market as a whole rather than to calculate the correlations of each share with each other individual share. This reduced the number of calculations from, $n(n + 3)/2$ under the Markowitz model to, $3n + 2$. To illustrate the extent of the reduction in calculations, consider 1000 investment alternatives. Under the Markowitz portfolio model this would require 501,500 calculations but is reduced to 3002 using Sharpe's "market" model.

Sharpe suggests that it is thus possible to consider the return for each security as follows:

$$R_i = a_i + b_i r_m + e_i$$

where R_i = return on the i th security,

a_i and b_i = least squares coefficients,

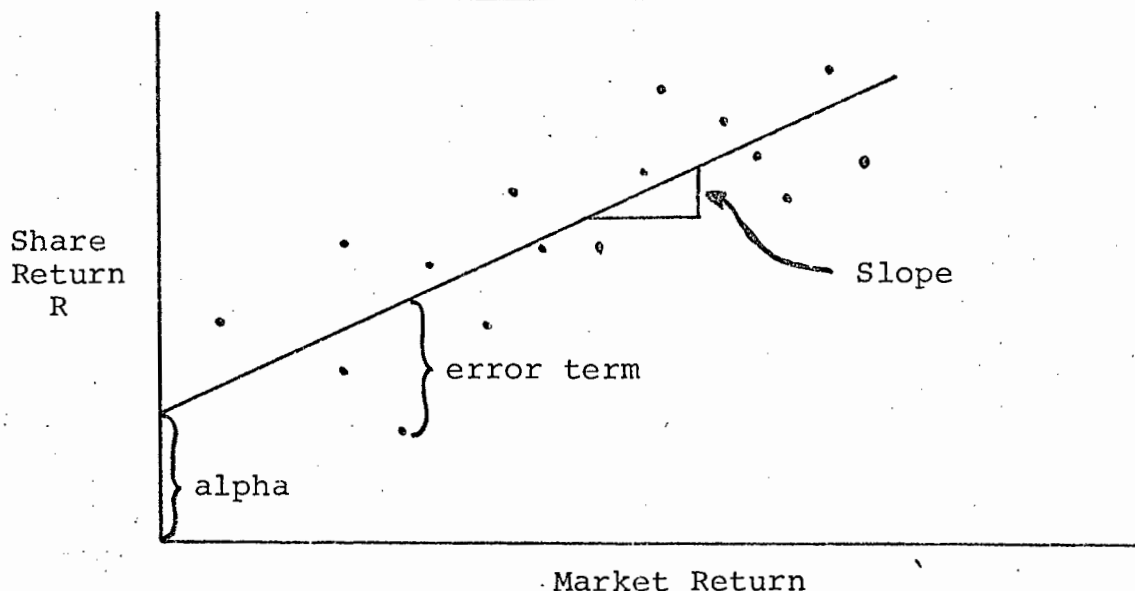
r_m = return on the market index or portfolio,

e_i = a random independent error term with expected value of zero and constant finite variance.

Thus Sharpe's model maintains that the return on any share depends on a constant (a or α), some coefficient (b or β) multiplied by the value of the market portfolio as measured say by a market index, plus a random measurement error where positive and negative errors are expected to cancel to provide an expected value of zero.

This equation is known as the "market model" and can be illustrated by a straight line fitted to share returns against the returns on the market index. See Figure 4-8.

Figure 4-8
The Market Model



It is now possible to derive the Capital Asset Pricing Model (CAPM) which states that the expected return on any investment or portfolio is related to the risk-free rate and the return on the market. Thus:

$$E(R_i) = R_F + B_i [E(R_m) - R_F]$$

Where $E(R_i)$ = expected return on share,

R_F = the risk-free rate of return,

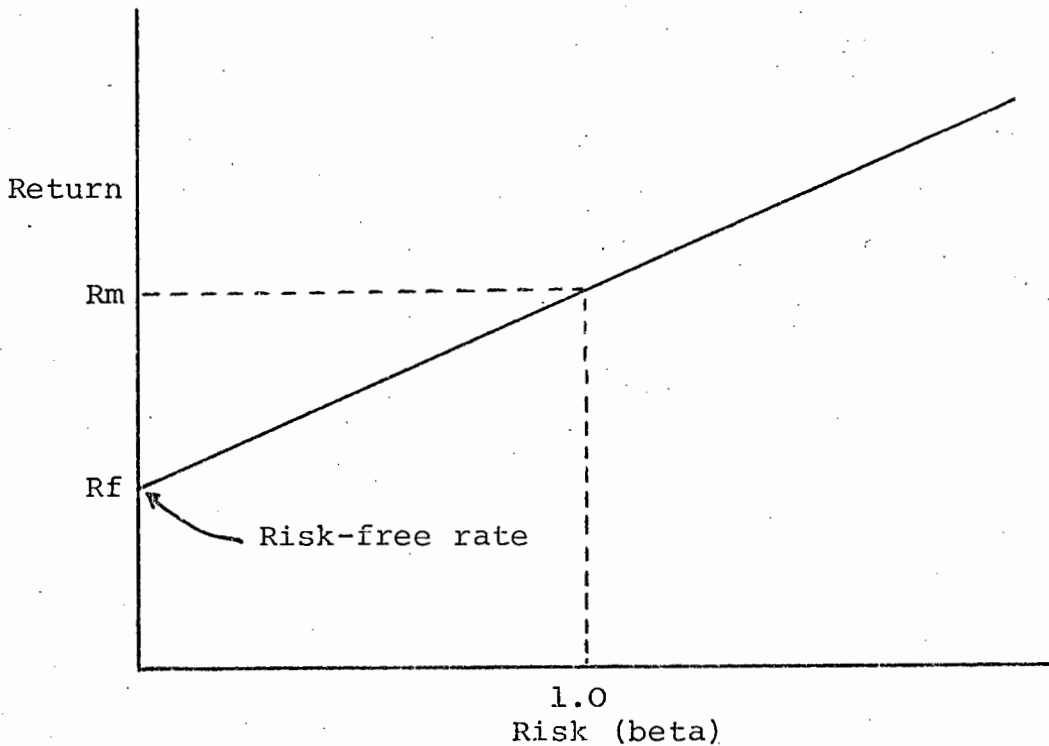
B_i = the beta of the i th share which is the measure of that share's sensitivity to market movements,

$E(R_m)$ = the return on the market.

The CAPM is illustrated graphically in Figure 4-9.

Figure 4-9

Graphical Illustration of the Capital Asset Pricing Model



Thus the B (beta) term can be thought of as the slope of regression line of share returns on market returns. This value is a measure of the movement of the share price in response to a market movement. For example, if a share has a $B = 1.5$, this means that a 10 percent rise in the market would be accompanied by a $1.5(10) = 15$ percent increase in the share price.

Obviously, the beta for the market is 1.0. The alpha term is in the words of Modigliani and Pogue, "equal to the average value over time of the unsystematic returns of the stock. For most stocks, the alpha factor tends to be small and unstable."²²

Modigliani and Pogue continue:

"Using the definition of security returns given by the market model, the specification of systematic and unsystematic risk is straightforward - they are simply the standard deviations of the two return components. The systematic risk of a security is equal to B times the standard deviation of market return:

$$\text{Systematic Risk} = B\sigma_m \text{ (where } \sigma_m = \text{standard deviation of the market)}$$

The unsystematic risk equals the standard deviation of the residual return factor e:

$$\text{Unsystematic Risk} = \sigma_e$$

The Portfolio beta factor in turn can be shown to be simply an average of the individual security betas, weighted by the proportion of each security in the portfolio."²³

It will be noted that the CAPM illustrated in Figure 4-9 differs from the Capital Market Line illustrated in Figure 4-5 in that risk is measured as beta rather than standard deviation. This is not a matter of concern for, as Lorie and Hamilton have noted:

"(In the CAPM) risk is measured by beta rather than standard deviation. For efficient portfolios, the two relationships are equivalent. By definition, the riskiness of efficient portfolios is determined exclusively by market movements and their returns are linearly related to both the standard deviation and beta."²⁴

14 ? The application of the model can be illustrated by assuming that the risk-free rate is say 8 percent and the expected market return is 14 percent. The model thus implies that by holding the market portfolio instead of the risk-free asset (such as Government Bonds), the investor will receive a risk premium of 6 percent (that is, $14 - 8 = 6$). On the other hand, should the investor decide to hold a risky asset, defined as a share with a high beta of say 1.5, he would expect a return as follows:

$$\begin{aligned}
 \text{Expected return (high risk)} &= R_F + B_i (R_m - R_F) \\
 &= .08 + 1.5 (.14 - .08) \\
 &= .08 + 1.5 (.06) \\
 &= .08 + .09 \\
 &= .17 \\
 &= 17 \text{ percent}
 \end{aligned}$$

A low risk asset, with a beta of .5 would return:

$$\begin{aligned}
 \text{Expected Return (low risk)} &= .08 + .5(.14 - .08) \\
 &= .08 + .5(.06) \\
 &= .08 + .03 \\
 &= .11 \\
 &= 11 \text{ percent}
 \end{aligned}$$

The model thus confirms expectations. An investor holding a completely diversified portfolio such as the market can expect to obtain a return equal to the return of the total market - that is, the average return of 14 percent. High risk assets are rewarded with higher returns and low risk assets with lower returns of 17 percent and 11 percent respectively.

To quote Lorie and Hamilton:

"The Sharpe model presents a simple and intuitive appealing picture of financial markets. All investors hold efficient portfolios and all such portfolios move in perfect lockstep with the market. Portfolios differ only in their sensitivity to the market. Prices of all risky assets adjust so that their returns are appropriate, in terms of the model, to their riskiness. This riskiness is measured by a simple statistic, beta, which indicates the sensitivity of the asset to market movements."²⁵

4.7 The Assumptions Underlying CAPM Theory

Both portfolio theory and capital asset pricing theory have a number of underlying assumptions. These are listed below.²⁶

- 4.7.1 The rate of return from an investment adequately summarizes the outcome from the investment, and investors see the various possible rates of return in a probabilistic fashion. (That is, they visualize a probability distribution of rates of return either consciously or subconsciously).
- 4.7.2 Investor's risk estimates are proportional to the variability of return, (namely, the standard deviation or variance) they perceive for a security or portfolio.
- 4.7.3 Investors are willing to base their decisions on only two parameters of the probability distribution of returns, the expected return and the variance (or its square root, the standard deviation) of returns.
- 4.7.4 For any risk class, investors prefer a higher rate of return to a lower one. Conversely, among all securities with the same rate of return, investors prefer less rather than more risk.

The above four assumptions are necessary for investors who will prefer efficient portfolios. The following eight assumptions are necessary to develop Capital Market Theory.²⁷

- 4.7.5 All investors are efficient diversifiers who seek to attain the efficient frontier.
- 4.7.6 Any amount of money can be borrowed or lent at the risk-free rate of interest R . No other borrowing is permitted.
- 4.7.7 Idealized uncertainty prevails; that is, all investors visualize identical probability distribution for future rates of return. They have homogeneous expectations.
- 4.7.8 All investors have the same "one-period" time horizon.
- 4.7.9 All investments are infinitely divisible.
- 4.7.10 No taxes and transaction costs for buying and selling securities exist.
- 4.7.11 No inflation and no change in the level of interest rates exist (or all changes are fully anticipated).
- 4.7.12 Capital markets are in equilibrium.

Many individuals object to the development of models and theories which lean so heavily on unrealistic assumptions. As Francis has observed:

"Some people object to models which social scientists'...build because the models are based on simplifying assumptions. However, the people should not object. Social scientists have as much right to seek basic economic truth by assuming away realistic details like taxes and uncertainty as physical scientists have to conduct their gravity experiments in sealed vacuum chambers where winds to not blow and birds do not fly."²⁸

Francis continues:

"Readers who are unaccustomed to economic analysis are probably confused and discouraged by a theory which is based on a list of unrealistic assumptions, but they should not be. The assumptions provide a concrete foundation upon which a theory can be derived by applying the forces of logic, intuition and mathematics. Without these assumptions, the analysis would degenerate into a polemic discussion of which historical facts, folklore, and institutions are significant, which are insignificant, what their relationships are, and what conclusions might be reached by a "reasonable person". Such discussions are usually not productive. Traditionally, economists have based their analyses on as few and as simple assumptions as possible. Then a theory is derived with conclusions and implications which are incontestable, given the assumptions. Later the assumptions are relaxed to determine what can be expected in more realistic circumstances. In the final analysis, the test of a theory is now how realistic its assumptions are not; rather, it is the predictive power of the model which should be judged."²⁹

The fact that the value of a model or theory lies in its predictive and explanatory power and should not be judged by the assumptions on which it is based was expressed by Milton Friedman as follows:

"...the relevant question to ask about the "assumptions" of a theory is not whether they are descriptively "realistic", for they never are, but whether they are sufficiently good approximations for the purpose in hand. And this question can be answered only by seeing whether the theory works, which means whether it yields sufficiently accurate predictions."³⁰

As the study will use the CAPM as the basis for measuring the risk of various strategies of diversification, it is necessary to examine the models assumptions in some detail and a review of these tests follows below.

4.8 Tests of the Underlying Assumptions of the CAPM

The following section provides a brief overview of the literature which seeks to examine the efficacy of the CAPM as a measure of risk and return. According to Modigliani and Pogue:

"If the CAPM is right, empirical tests will show the follow:

1. On the average, and over long periods of time, the securities with high systematic risk should have high rates of return.
2. On the average, there should be a linear relationship between systematic risk and return.
3. The slope of the relationship should be equal to the mean market risk premium during the period used.
4. The constant term should be equal to the mean risk-free rate.
5. Unsystematic risk,...should play no significant role in explaining differences in security returns."³¹

4.8.1 Empirical Tests of the Relationship Between Systematic Risk and Return

4.8.1.1 Individual Shares

The earliest study which examined this relationship was that of Jacob which studied 593 shares over the period 1946 to 1965.³² Jacob finds that there is a relationship between risk and return but that this relationship is weaker than that predicted by the CAPM. She states:

"...the actual regression lines (for both securities and portfolios) tend to have positive intercepts and correspondingly smaller slopes. These results imply that securities and portfolios generally considered "aggressive" tend to yield average returns less than the theory would indicate, while those that are "defensive" tend to yield returns greater than those indicated by the theory."³³

For example, Jacob expected the "aggressive" or high beta shares with beta values greater than 1.0 to provide a return of 10.8 percent for each unit increase in beta while the actual results showed that the return was only 6.7 percent.

Miller and Scholes analysed 631 shares over the period 1954 - 1963 and their findings are contrary to those predictions by the CAPM.³⁴ Miller and Scholes were replicating Lintner's study³⁵ in which he examined the relationship between a share's residual variance and its regression with the market. Lintner found that these residual variances, or unsystematic risk, were significantly correlated with returns. Thus both Lintner and Miller and Scholes have produced evidence which is contrary to that predicted by the CAPM since unsystematic risk is assumed to be eliminated through diversification and thus should have no effect. Miller and Scholes then examined their research to establish whether any biases, such as non-linearity and heterodasticity existed. They were unable

to identify any significant bias. They concluded however, that skewness, combined with measurement errors could explain the results and the CAPM could still provide a useful model. In their review of the Miller and Scholes study, Modigliani and Pogue conclude that:

"In any case, the results do show that stocks with high systematic risk tend to have high rates of return."³⁶

The findings regarding individual shares are thus not satisfactory and the evidence appears somewhat contradictory but may be due to measurement and statistical problems. The findings on the relationship between risk and return in portfolios of shares is however, much more encouraging.

4.8.1.2 Portfolios

The earliest and often quoted study is that by Sharpe himself.³⁷ In order to test the theory Sharpe analysed the returns on 34 open-end mutual funds during the period 1954 to 1963. The results were as predicted by the theory and higher risk portfolios obtained higher returns. The analysis revealed that the riskless rate of return obtained by investors was approximately 3.8 percent and each 1 percent increase in risk was associated with a 0.58 percent increase in annual return. In testing for linearity Sharpe found evidence of non-linearity in that a quadratic regression equation resulted in a slightly higher

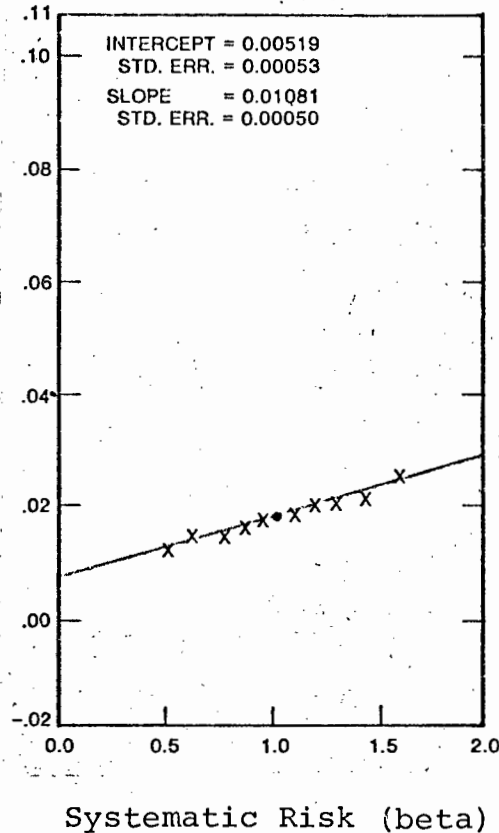
correlation coefficient of 0.852 in comparison to the 0.836 value produced by the linear equation. Sharpe concludes:

"...the data do lend considerable support to the theory tested. Mutual fund portfolios that show substantial variability in annual return provide larger returns on the average than do those with less variable returns, as predicted by the risk-aversion hypothesis. And though the relationship between average yield and standard deviation does not appear to be perfectly linear, the differences are slight and in the expected direction. Finally the portfolios exhibit the high correlations with the overall market as predicted by the theory."³⁸

Jensen performed the second study.³⁹ His sample consisted of 115 open-end mutual funds and the results indicated an average beta of 0.84 and a coefficient of determination of $r^2 = 0.865$. He concluded that the results indicated the validity of the CAPM model.

In order to avoid measurement errors, Black, Jensen and Scholes grouped all New York Stock Exchange shares into portfolios of 10 shares for each year of the period 1931 to 1965.⁴⁰ Black, Jensen and Scholes found that over the 35 year period, average returns increased by 0.01081 percent per month for each unit increase in beta. The increase, according to CAPM theory should have been 0.0142 percent per month. Figure 4-10 shows the findings for the period 1931 to 1935 and confirms the linearity of the results.

Figure 4-10

Results of Black, Jensen and Scholes Study, 1931-1965Average
Monthly
Returns

* Source: Black, Fischer, Jensen, Michael C
Studies in the Theory of Capital Markets

In discussing these results Modigliani and Pogue conclude as follows:

"This paper provides substantial support for the hypothesis that realized returns are a linear function of systematic risk value. Moreover, it shows that the relationship is significantly positive over long periods of time."⁴¹

The Black Jensen and Scholes study did however, reveal that the theory was not as "reliable" over the short term.

* Black, Fischer, Jensen, Michael C., and Scholes, Myron S., "The Capital Asset Pricing Model : Some Empirical Tests", in Jensen, Michael C. (Editor) Studies in the Theory of Capital Markets, op.cit. Pages 79-121

* See Ref. 40 Page 292

The Black, Jensen and Scholes study thus finds the relationship between risk and return to be very linear, but the intercept term was found to be significantly non-zero and thus above the risk-free rate.

Friend and Blume, in their test of the relationship between risk and return, constructed portfolios of New York Stock Exchange shares at the beginning of three different periods of time - 1929, 1948 and 1956.⁴² Shares were assigned to portfolios on the basis of their beta values. Shares with the lowest 10 percent of beta values were assigned to the first portfolio. Thus ten portfolios based on decile values of betas were constructed. The portfolios were reconstructed each year to keep the portfolio beta stable over time. The results of this study are given in Table 4-6 below.

Table 4-6

Relationship Between Risk and Return over Various
Periods: Friend and Blume Study

Portfolio	1929-1969		1948-1969		1956-1969	
	Beta	Mean Return %	Beta	Mean Return %	Beta	Mean Return %
1	0.19	0.79	0.45	0.99	0.28	0.95
2	0.49	1.00	0.64	1.01	0.51	0.98
3	0.67	1.10	0.76	1.25	0.66	1.12
4	0.81	1.28	0.85	1.30	0.80	1.18
5	0.92	1.26	0.94	1.35	0.91	1.17
6	1.02	1.34	1.03	1.37	1.03	1.14
7	1.15	1.42	1.12	1.32	1.16	1.10
8	1.29	1.53	1.23	1.33	1.30	1.18
9	1.49	1.55	1.36	1.39	1.40	1.15
10	2.02	1.59	1.67	1.36	1.92	1.10

Source: Friend, Irwin and Blume, Marshall E., "Risk and Long Run Rate of Return on NYSE Stocks", Working Paper No. 18-72, Wharton School of Commerce and Finance, Rodney L. White Center for Financial Research.

Their results indicate a strong relationship for the 1929 - 1969 period but a weaker relationship over the 1956-1969 period. Although the results do indicate that higher risk is associated with higher returns, the relationship tends to flatten out for portfolios with above average betas.

In a second study Blume and Friend obtained mixed results.⁴³ The slope of the fitted regression line was found to be less than predicted theoretically during the periods 1955-1959 and 1960-1964, and greater during the period 1965-1968. Blume and Friend conclude that the evidence in the study indicates that the CAPM may not be a useful explanatory model of returns on all financial assets yet:

"The fact that the relationship of average realized returns for NYSE listed common stocks to their corresponding betas appears very close to linear in each case of the three periods analysed suggests that the capital asset pricing model...may be useful in explaining returns on well-seasoned common stocks."⁴⁴

In respect to their findings of the applicability of the linear model, Blume and Friend state:

"However, the comparisons as a whole suggests that a linear model is a tenable approximation of the empirical relationship between return and risk for NYSE stocks over the three periods covered."⁴⁵

Makiel also provides evidence of the relationship between risk and return for portfolios.⁴⁶

In discussion of his findings Makiel states:

The results show a remarkable consistency with the theory. Returns are related to beta in a straight-line manner just as the theory predicts. Over the long pull, high-beta portfolios have provided larger total returns than low-risk ones. (Also when examining boom and recession periods) the relationship is exactly as predicted by the theory. In 'up' years, high-beta portfolios well outdistanced the low-beta ones ... In 'down' years, however, the high-beta portfolio did considerably worse than the low volatility ones".⁴⁷

4.9 Beta Stationarity

While the empirical research indicates that the CAPM is robust in that the assumptions can be relaxed without impairing the usefulness of the model, a further issue must be resolved before the model can be applied to the analysis of corporate strategy. Strategy, by definition, is concerned with the long term relationship between the firm and its environment and hence the long run relationship between risk and return. The stationarity of betas, or their predictability over time, must therefore be resolved if any meaningful relationship between the long term strategy adopted by the firm and its risk/return profile is to be established. Fortunately, a number of important studies have been completed and will be reviewed in this section. The studies can once again be divided into those concerned with individual share stability and those concerned with the stability of portfolios.

4.9.1 The Stationarity of Individual Shares

Sharpe and Cooper investigated individual share stability in their study of the risk and return relationship for all the share on the New York Stock Exchange over the period 1931-1967.⁴⁸ A beta was calculated for each year and each year the shares were divided into ten risk classes based on the beta values. Investment strategy

Number 10 was regarded as the highest risk strategy as it consisted of the highest beta value shares. The mean beta values for the 10 classes ranged from 0.58 to 1.42. Each of the ten classes were monitored over the period of 37 years. Apart from showing additional strong support for the risk-return relationship discussed above, strong evidence on beta stability was provided. Table 4-7 summarizes the findings in this regard.

Table 4-7

Individual Share Stability: Sharpe and Cooper Research

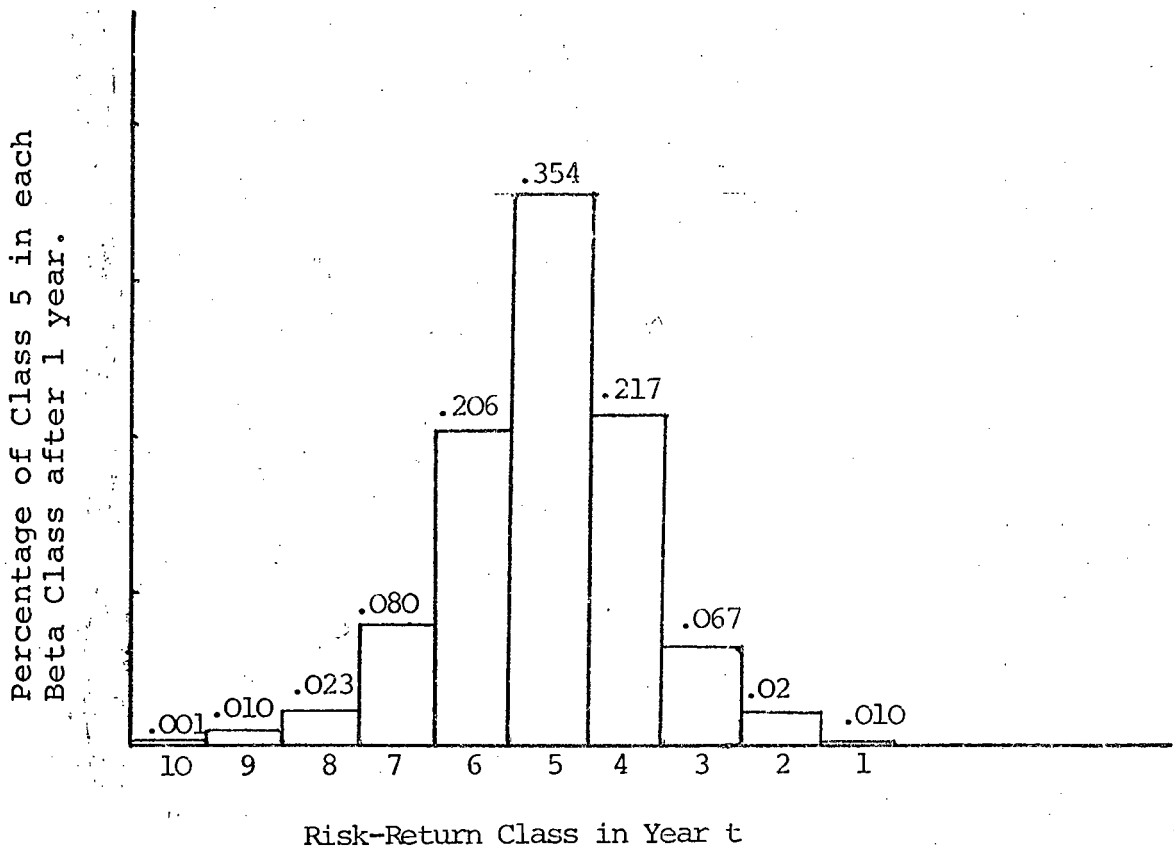
Risk Class	Percentage in Same Risk-Return Class		Proportion Within One Risk-Return Class	
	In Yr. t+1	In Yr. t+5	In Yr. t+1	In Yr. t+5
10	.7417	.3517	.9129	.6927
9	.4989	.1835	.8800	.5373
8	.4091	.1638	.8807	.4534
7	.3564	.1327	.7836	.4092
6	.3452	.1389	.7758	.3927
5	.3535	.1361	.7799	.4170
4	.3807	.1320	.8018	.4022
3	.4268	.1588	.8418	.4458
2	.5091	.2145	.9023	.6089
1	.7491	.4047	.9340	.6230

Source: Sharpe, William F., and Cooper, Guy M., "Risk-Return Classes of New York Stock Exchange Stocks", Financial Analysts Journal, March-April 1972, Table III, page 53.

Figure 4-11 is a graphical illustration of the movement of individual share betas from one "risk class" to another over the course of a single year.

Figure 4-11

Illustration of the Distribution of Beta Mobility over One Year, Risk-Return Class 5: Sharpe and Cooper Research



Source: Sharpe, William F., and Cooper, Guy M., "Risk-Return Classes of New York Stock Exchange Stocks", Financial Analysts Journal, March-April 1972, Table I, page 53.

In the words of Sharpe and Cooper, "...there is substantial stability over time, even at the level of individual securities."⁴⁹

Levy has also examined the short-run stationarity of betas by developing betas for 500 New York Stock Exchange shares over the period 30th December, 1960 to 18th December, 1970.⁵⁰ The period was divided into ten non-overlapping periods and each period's 52 week beta was then correlated with the beta of the subsequent 52 week beta, for each individual share. In order to facilitate comparison with Blume's study,⁵¹ (which will be discussed below), both product-moment correlation coefficient and rank order correlation coefficients were calculated. The rank-order coefficient has the advantage of eliminating the effect of extreme outlying observations which can affect product-moment calculations. His findings show that individual share betas vary considerably and in Levy's words, beta is "unpredictable for individual securities."⁵²

5.9.2 The Stationarity of Portfolios of Shares

The earliest study of portfolio beta was that of Blume.⁵³ In an analysis of 251 shares on the New York Stock Exchange over the four consecutive eight-year periods between 1927 and 1960. Five portfolios based on the beta values of the shares were constructed with the fifty highest beta shares

in portfolio one, the next fifty highest into portfolio two - and so on. The results of selecting such portfolios on the line basis of individual share betas at the end of each period are given in Table 4-8.

Table 4-8
Portfolio Beta Stability - Blume, 1968

Portfolio	Portfolios Selected on the Basis of Betas at End of:					
	Period 1		Period 2		Period 3	
	Average Beta at End of the Period		Average Beta at End of the Period		Average Beta at the End of the Period	
	1	2	2	3	3	4
1	1.47	1.46	1.65	1.42	1.51	1.42
2	1.14	1.14	1.19	1.15	0.15	1.13
3	0.90	0.97	0.92	1.02	1.02	1.05
4	0.69	0.77	0.68	0.76	0.76	0.87
5	0.43	0.50	0.39	0.55	0.55	0.55

Source: Blume, Marshall E., "The Assessment of Portfolio Performance - An Application of Portfolio Theory," Unpublished Ph.D. Dissertation, University of Chicago, Chicago, 1968., quoted by Roux, F.J.P., "A Note on Measuring Risk", Unpublished Paper Graduate School of Business Administration, University of Witwatersrand, Johannesburg, 1977, page 11.

In a second study, Blume analysed the stability of beta in portfolios of varying size.⁵⁴ The analysis was conducted using portfolios consisting of 1, 2, 4, 7, 10, 20, 35, 50, 75 and 100 shares. His findings of the average correlation coefficients between the five periods for both products-moment and rank order analyses are given in Table 4-9.

Table 4-9

Product-Moment and Rank Order Correlation Coefficients for
Portfolios of Varying Sizes for Five Adjacent Seven Year
Periods - Blume, 1971

Number of Shares Per Portfolio	Average Product-Moment Correlation Coefficient	Average Rank Order Correlation Coefficient
1	0.618	0.672
2	0.736	0.774
4	0.828	0.824
7	0.880	0.906
10	0.914	0.938
20	0.954	0.978
35	0.966	0.986
50	0.982	0.984

Source: Blume, Marshall E., "On The Assessment of Risk",
Journal of Finance, Volume 26, March 1971, Table
2, page 7.

Blume has commented on these results as follows:

"The values of these correlation coefficients is striking. For the assessments based upon the data from July, 1926 through June, 1933, and evaluated using data from July, 1933 through June, 1940, the product-moment correlations varied from 0.63 for single securities to 0.98 for portfolios of 50 securities. The high value of the latter coefficient indicates that substantially all of the variation in the risk among portfolios of 50 securities can be explained by assessments based upon previous data.... These results, which are typical of the other periods, suggest that at least as measured by the correlation coefficients, naively

extrapolated assessments of future risk for larger portfolios are remarkably accurate, whereas extrapolated assessments of future risk for individual securities and smaller portfolios are of some, but limited value in forecasting the future."⁵⁵

Levy, in his study discussed earlier, also constructed portfolios based on ranked historical beta values and both product-moment and rank order correlation coefficients were calculated. Levy's mean correlation coefficients for both techniques are given in Table 4-10.

Table 4-10

Product-Moment and Rank Order Correlation Coefficients for
Portfolios of Varying Sizes over 9 Adjacent one Year
Periods - Levy

Number of Shares per Portfolio	Average Product-Moment Correlation Coefficient	Average Rank Order Correlation Coefficient
1	0.486	0.466
5	0.769	0.747
10	0.853	0.849
25	0.939	0.935
50	0.972	0.980

Source: Levy, Robert A., "On The Short-Term Stationarity of Beta Coefficients," Financial Analysts Journal, November-December 1971, Table 2, page 57.

Thus, despite measurement problems associated with the calculation of beta for individual shares, betas are remarkably stable and are acceptable as projections of future risks, when securities are grouped into portfolios.

4.10 Summary

The empirical research does suggest that the CAPM does provide a reasonably good risk surrogate. Return has been shown to be positively and linearly related to risk. The research findings suggest that the distinction between systematic risk, unsystematic risk and returns is not clear since both risk components appear to be related to return whereas the CAPM predicts that only systematic risk should be so related. This effect may however, be the result of measurement error and statistical problems. Beta values have also been shown to exhibit reasonable stationarity for individual shares and remarkable stability for portfolios.

Although the CAPM is less reliable on virtually every criterion, for individual shares, it has been shown to be a more accurate representation for portfolios of securities. According to Sharpe:

"A number of rather inaccurate estimates for securities may combine to form an exceptionally accurate estimate for a portfolio, thanks to the law of large numbers. The estimate for one security may be too high, and another too low, with the result that the average is 'just right'. To borrow the statistician's jargon: if predictions about securities are subject to error but unbiased (and the errors are uncorrelated), predictions about fairly well diversified portfolios may be quite accurate."⁵⁷

Jensen, commenting on research which has sought to test the CAPM when the apparently highly restricting and unrealistic underlying assumptions if the model have been relaxed, maintains:

"...As we have seen, most of the assumptions of the model have been shown to be capable of relaxation without destroying the essential nature of the results."⁵⁸

Francis, in a review of the effects of relaxing the assumptions underlying CAPM theory, concludes as follows:

"In each case the implications of the model were slightly obscured. If all were relaxed simultaneously, the result would be even less determinant. However, the fact that the analysis is not exactly determinate under realistic assumptions does not mean it has no value. The analysis still rationalizes much observed behaviour, explain such hitherto unexplained practices as diversification, and offers realistic suggestions about the directions prices and returns should follow when they deviate significantly from equilibrium. The theory is a powerful engine for analysis."⁵⁹

There is strong evidence to suggest that CAPM theory is a valid measure of risk and that the approach that will be adopted in this study is methodologically sound. The "beta" will be calculated for firms which will then be grouped into portfolios according to their strategy of diversification. The following chapter will discuss the methodology in depth before proceeding to the analysis and evaluation of the findings.

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5. RESEARCH METHODOLOGY AND HYPOTHESES

5.1 Introduction

Previous chapters have outlined the basic theoretical groundwork that forms the basis upon which this research is based. Strategy has been shown to be the outgrowth of an amalgam of forces - some conscious and based on careful analysis which seek to ensure that explicitly generated and stated objectives are met. Other forces which shape strategy are those which arise from within the firm and are based on shifting coalitions. These latter forces are likely to be more powerful in diversified firms since the corporate head office, by design in many cases, does not understand the many different industries in which its divisions operate and thus allocation of scarce capital resources for expansion are likely to be based on divisional perspective rather than corporate perspective. The strong divisions, both in a political and economic sense, are likely to obtain the major share of the resources. The fact that these divisions obtain the resources enables them to become even stronger and visible in the firm and so the cycle is repeated.

Firms are also seen to evolve through different "stages of development" and adopt unique strategies. Certain firms grow largely by internal development while others focus on external or acquisitive means to achieve their objectives. In addition, firms appear to adopt a particular philosophy of diversification. Research has shown that firms adopt one of four major approaches to their diversification. On one

extreme, the firms adopt a strategy of completely unrelated diversification and will enter almost any industry. Others remain reasonably close to their "traditional" industry or "core skills" and are described as "related" diversifiers. "Dominant" product firms appear to maintain very close ties with their industry and "core skills" since their diversification attempts are relatively modest when compared to their major product-market area. "Single" product firms occupy the opposite end of the continuum from that of the "unrelated" group in that they have not diversified to any meaningful extent.

The theory of diversification from a financial point of view has also been reviewed in an attempt to assess the possible benefits accruing to a diversification strategy. Since many "unrelated" firms are regarded by financial analysts as investment holding companies, it is appropriate to attempt to explain the persistent trend toward corporate diversification by relating it to the well developed theory of security diversification. The financial theorists have shown that it is possible to obtain substantial improvements in a risk/return sense by adopting a diversified or unrelated portfolio of shares.

This chapter will provide an overview of the research objective and methodology which seek to examine these issues in a developing economy. In addition, the research procedures

and the development of the research hypotheses are presented.

5.2 Overview of Research Objectives

5.2.1. The Research Questions

As discussed in earlier chapters, the research efforts that have focused on the amount of diversification measured on a product count basis in order to determine whether diversification makes a significant difference to performance, have been singularly unsuccessful. Yet studies conducted in a number of different and highly developed countries, namely the United Kingdom, West Germany, France, Italy and the United States have shown that there is a steady trend toward increased diversification. The main research objective should be clear - "Why do firms continue to diversify when it would appear that there are no advantages in performance as measured by published financial data?" Flowing from this question a further set of questions arise:

- If the product count method of measuring diversification does not reveal any meaningful in the face of a continuing trend toward diversity of operations, is the method of measuring diversification a meaningful one?
- What effect does a particular product-market strategy have on risk?
- Are larger firms less "risky" than smaller firms?

All these research questions are posed within the framework of a less-developed economy. The mature economies such as the United States and the major European countries

provide a corporate environment substantially different from that experienced in the developing countries - yet very little research appears to have been performed in the context of a less mature economy despite the fact that most of the nations of the world are classified as developing or less developed. Such a study is believed to be of considerable importance since it will assist in the development of a framework within which firms will be better able to assess their development and growth alternatives and ensure efficient resource allocation to those firms that are effective at value creation.

5.2.2. General Research Problems and Limitations

This research has been carried out in South Africa and covers the seven year period 1970 - 1976. The following conditions in this particular environment have contributed to complicate the research:

5.2.2.1. Unpublished and unavailable data.

5.2.2.2. Inflation.

5.2.2.3. Recessionary economic conditions after the oil crisis of October-November, 1973.

Each of these difficulties is discussed briefly below:

5.2.2.1. Unpublished and Unavailable Data

The research appears to suffer from this problem. How-

ever, in the South African business research field this is a particularly serious limitation. The disclosure requirements of South African firms are completely inadequate. For example, many firms do not publish sales figures. Furthermore, the increase of leasing in the South African economy is well known and although lease payments are disclosed, the actual lease periods are not required to be disclosed. Thus in order to calculate the total assets employed in a firm by capitalizing leases is impossible since the analyst has no information as to the breakdown of the annual lease payment into, say, three year, five year or ten year leases.

Wherever data was unavailable, such firms were still included in the population and the specific variable was entered as missing data.

5.2.2.2. Inflationary Conditions

South Africa has experienced high rates of inflation during the 1970 decade and has had a different effect on the various industries in the country. As a result of problems in adjusting for the impact of inflation on different industries, it was decided not to attempt such an adjustment for the following reasons:

- 5.2.2.2.1. No single economist or economic study consulted agreed on what effect an overall rate of inflation of, say, 8 per cent per annum in a particular

year would have on the twenty-one sectors of the Johannesburg Stock Exchange.

5.2.2.2.2. This study revealed that some 67 per cent of the firms in the population were not single product firms and were vertically integrated and/or diversified to some extent. The problems of inflation-adjusting for multi-industry firms were considerable and introduced an immediate bias into the research.

5.2.2.2.3. The earlier studies in the field of corporate performance in the developed economies did not adjust for inflation. Thus, in order to facilitate comparison with these studies, no adjustment for inflation was made.

5.3. The Research Population and Methodology

5.3.1. The Research Population

The earlier studies which have analysed corporate performance and on which this study is based and which were discussed in the literature survey in earlier chapters, based their analyses on samples drawn from a larger, well-defined population. As a result these studies are open to sampling and statistical error. Both Wrigley and Rumelt for example extracted their sample of 100 companies from the "Fortune 500"

lists of 1967, 1949, 1959 and 1969 respectively.¹

In order to avoid both sampling and statistical problems it was decided to analyse ALL the industrial companies quoted on the Johannesburg Stock Exchange over the period 1970-1976. The firms were carefully analysed according to the procedures developed by Wrigley and Rumelt and then allocated to their strategic groups. The data used to identify firms was obtained from:

- 5.3.1.1. The Johannesburg Stock Exchange Public Relations Department
- 5.3.1.2. The Investor's Guide (Pty) Ltd., an investment advisory firm
- 5.3.1.3. The Johannesburg Stock Exchange Handbooks, Volumes 1 and 2, 1970 to 1977
- 5.3.1.4. Published company accounts

The total number of 376 companies were considered for inclusion into the research population. Of these 376 firms, 98 were eliminated because analysis of the published data and personal contact with executives showed that these firms had changed their strategy radically. If a firm had achieved a change in strategy during the period it would not fit into any single category and was thus eliminated. To be included in the research population the following criteria had to be met:

- The firm should not have been subject to any major modification or change - for example, having completed a major diversifying and unrelated take over during the period 1970-1976. Such a radical and important move would have meant a fundamental change in strategy.
- The only firms that were permitted to pursue significant unrelated growth were those classified as conglomerates. This was considered acceptable since this pattern of development is an integral part of the conglomerate strategy. This convention follows the earlier research studies.
- The firm must have been quoted on the Johannesburg Stock Exchange over the period 1970-1976 inclusive.

The research population was thus defined as:

All industrial firms quoted on the Johannesburg Stock Exchange over the period 1970-1976 inclusive which followed and did not divert from a particular diversification strategy during this period.

The companies included in the research population are given in Appendix II. Companies have been classified into their strategic categories using the procedures described in section 5.3.2. later in this chapter. The industry breakdown of the population is described in Table 5-1.

Table 5-1

The Research Population by Industry as Defined
by the Johannesburg Stock Exchange - Absolute
Frequency, Relative Frequency and Cumulative
Frequency

<u>Industry</u>	<u>Code</u>	<u>Absolute Frequency</u>	<u>Relative Frequency</u>	<u>Cumulative Frequency</u>
Financial Industrial	1	42	15.1	15.1
Beverages and Hotels	2	8	2.9	18.0
Building & Allied	3	26	9.4	27.4
Chemical	4	6	2.2	29.6
Clothing & Knitwear	5	22	7.9	37.5
Fishing	6	7	2.5	40.0
Food	7	12	4.3	44.3
Footwear and Leather	8	3	1.1	45.4
Furniture & Appliances	9	10	3.6	49.0
Iron, Steel, Engin- eering & Electrical	10	48	17.3	66.3
Motor & Transport	11	21	7.6	73.9
Pulp, Paper & Pack- aging	12	12	4.3	78.2
Pharmaceutical and Medical	13	7	2.5	80.7
Printing & Publishing	14	8	2.9	83.6
Shipping	15	1	0.4	84.0
Stores	16	13	4.7	88.7
Sugar	17	5	1.8	90.5
Textiles, Carpets, Blankets and Yarns	18	7	2.5	93.0
Tobacco and Match	19	4	1.4	94.4
Retailers & Whole- salers	20	9	3.2	97.6
General	21	7	2.5	100.0
Total		<u>278</u>	<u>100.0</u>	

The research programme was designed to evaluate corporate performance and risk according to corporate strategy as evidenced by the orientation toward diversification. The hypotheses stated in the following section are based on the theory discussed earlier in the literature survey.

5.3.2. The Research Methodology

As stated earlier, all the industrial firms quoted on the Johannesburg Stock Exchange over the period 1970-1976 and which did not undergo any major shifts in the lend and type diversification were included in the research population. These firms were placed into strategy categories based on the methodologies developed by Wrigley and Rumelt. The following section describes this classification methodology.

5.3.2.1. The Classification of Firms into Strategic Categories

Following Wrigley's original system, Rumelt defined a "specialization ratio" as follows:

The proportion of a firm's revenues that can be attributed to its largest single business in a given year.²

Rumelt continues:

Taking the term specialization ratio as denoting the proportion of a firm's annual revenues attributable to its largest discrete product-market activity, Wrigley's original categories may be described as follows:

Single Product: Firms with a specialization ratio between 0.95 and 1.0. Such firms grow only through expansion in the scale of their operations.

Dominant Product: Firms with a specialization ratio between 0.70 and 0.95. Such firms have diversified to a small degree but are still quite dependent upon and characterized by their major product-market activity.

Related Product: Firms with a specialization ratio less than 0.7 which have diversified by adding new activities that are tangibly related to the collective skills and strengths possessed originally by the firm.

Unrelated Product: Firms that diversify (usually by acquisition) into areas that are not related to the original skills and strengths, other than financial, of the firm...³

Following this approach each firm was analysed to establish its specialization ratio. The major business was viewed as a business which could be managed separately without affecting the firms' other activities. This required that a line of demarcation be drawn between the major product-market area and the remaining business units. This proved to be a very difficult activity. Rumelt experienced similar difficulties:

Each company had a unique history and had developed its own pattern of relationships between technologies, products and markets. What was a discrete business for one firm was often an integral and non-separable business in another firm.⁴

Rumelt found that the following types of strategic change scenarios were of assistance in establishing strategic inter-dependency:

- eliminate the product-market-activity or increase its size.

The attempt was made to establish whether the decrease or increase in size of a business area would affect the major product-market area to a significant degree. For example, if T.W. Beckett and Company Ltd. were to drop their coffee division, would this have a serious effect on the tea division? The conclusion reached was that it would affect performance considerably as the products were sold by the same sales force and loss of shelf space and promotional power through the lack of joint in-store promotions. Thus tea and coffee were seen as constituting a single product described as "beverages". The South African Breweries on the other hand, could eliminate or expand the Afcol Furniture group without any serious effect on the Beer Division. Thus these two product-market areas are "unrelated."

- to employ a different production technology of process or to use a different raw material.

A firm such as the McCarthy Group which retails motor vehicles would be changed or affected considerably if a decision was taken to move to say, wholesaling alone or to retail a different product. This would entail a change of technology in a retailing sense. Consequently, McCarthy's retailing division must be seen as a "discrete" or single business unit. Where this dependence is not apparent, in a firm such as AE and CI Ltd., where many different technologies are employed, the firm is clearly less dependent on a process or skill and can be divided into several distinct business units.

The procedure of classifying firms is obviously subjective and involves the exercise of judgement by the researcher in dealing with this issue. Rumelt argues as follows:

These criteria should make it clear that while our method of classifying discrete businesses does require the exercise of judgment on the part of the evaluator, it is consistent with the "top down" approach to the study of diversification. While

it necessarily introduces problems associated with the lack of totally objective standards, it is doubtful whether such standards are attainable in business research of this type. ...In this research we have sought to strike a balance between dealing with aspects of a situation that are measurable and dealing with the aspects thought to be most relevant. When in doubt, we have tended to favour relevancy over exactness.⁵

The specialization ratio (SR) was calculated for each firm for the year 1976 and the firm was then placed into

Ⓚ the appropriate category as follows:

- Firms with SR between 0.95 and 1.0 into Single Business.
- Firms with SR between 0.70 and 0.95 into Dominant Business.
- Firms with SR between 0.50 and 0.70 into Related Business and
- Firms with SR less than 0.50 into Unrelated Business.

In order to achieve further refinement of Wrigley's classification system, Rumelt introduced a further ratio, called the "Related Ratio" which he defined as "the proportion of a firm's revenues attributable to its largest group of related businesses."⁶ Thus although a firm operated in a number of discrete business areas, these areas may be regarded as related in that they may concern the marketing or manufacturing of a product to a common group of consumers or a common industry. Each firm that was found to have a Specialization Ratio of less than 0.70 was regarded as belonging to either the Related Business category or the Unrelated Business category. If the Related Ratio of a firm was greater than 0.70 then that firm was classified as a Related

Business firm. Similarly, if the Related Ratio was less than 0.70 then the firm was classified as an Unrelated Business firm.

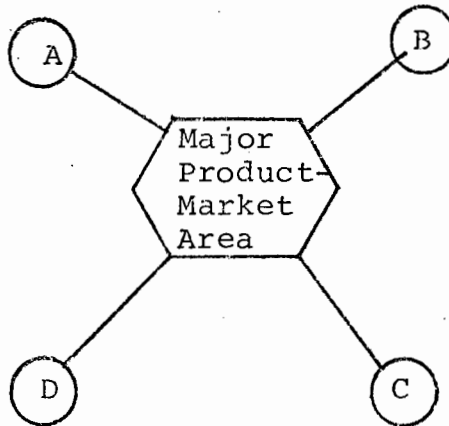
Rumelt also identified a pattern amongst the more diversified firms in the Dominant and Related Business categories that suggested that certain firms diversify into areas that are allied to the core or major business area of those firms. Rumelt observed as follows:

A search through the Related group for other types of patterns revealed that a distinction could be drawn between firms that had stayed relatively "close to home" and those which had related new activities to old in such a way that they were eventually active in businesses which, considered by themselves, were virtually unrelated.⁷

Those firms that diversified in such a way that all new product-market areas were "close to home" and were all linked to the major product-market area were termed either "Dominant-Constrained" or "Related Constrained." Those firms who had diversified in such a way that the "newest" product-market areas were linked to the major product-market area via an earlier diversification move were termed "Dominant-Linked" or "Related Linked." These relationships are illustrated in Figure 5-1.

Figure 5-1
Constrained and Linked Strategy
Relationships

A: CONSTRAINED



B: LINKED



In Figure 5-1, the "constrained" strategy ensures that diversification moves denoted A, B, C and D are all connected or "constrained" to the major business area. A 'linked' strategy on the other hand, connects new business areas E and H to the major business by virtue of their relationship to business areas F and G. If business areas F and G did not exist, then business areas E and H would be regarded as "unrelated" to the major business area.

The classification of firms into the Dominant "constrained"

and "linked" groups also reveals a group of firms that have diversified into "unrelated" areas and that do not fit neatly into the "constrained" and "linked" groups. These firms have a Specialization Ratio greater than 0.70 and that revenues from unrelated business areas exceed revenues from related business areas, but not including the dominant business area. These firms were classified as "Dominant Unrelated".

The Dominant business category also consists of vertically integrated firms in which the production process is sequential and linked. Sappi Ltd., is a good example of a vertically integrated firm in that the company operates in the complete production cycle for paper products ranging from forest management and development, sawmilling to pulp and paper production. Eddels Holdings Ltd. is a further example since the firm has interests in leather tanning, shoe manufacturing, wholesaling and retailing. These firms were classified into a "Dominant Vertical" category.

The "Unrelated" group of firms also exhibited two distinct methods of operation or philosophy. Certain firms, although operating in different areas are administered in such a way as to suggest that they are completely different from a managerial point of view.

In a study of similarly sized diversified firms Berg has found significant differences between firms he termed

"diversified majors" and those termed "conglomerates."⁸

Table 5-3 summarizes his findings.

Table 5-3
Corporate Office Differences Between
Diversified Majors and Conglomerates

<u>Executive Roles</u>	<u>Diversified Majors</u>		<u>Conglomerates</u>	
	<u>Average Number of Corporate Executives in the Role</u>	<u>% of Total in the Role</u>	<u>Average Number of Corporate Executives in the Role</u>	<u>% of Total in the Role</u>
General Executive	4	1.4	5	5.4
Finance (of which control)	84 (58)	28.3 (19.5)	51 (23)	55.5 (25.0)
Legal/Secretary	20	6.7	17	18.4
Personnel	16	5.4	7	7.6
Research and Development	139	46.8	-	-
Marketing	10	3.3	-	-
Manufacturing	3	1.0	-	-
Public Relations	8	2.8	6	6.5
Purchasing & Traffic	12	4.2	-	-
Corporate Planning	55	1.6	5	5.4
Totals	297	100.0	92	100.0

Source: Berg, Norman, "Corporate Role in Diversified Companies," Unpublished Working Paper, Graduate School of Business Administration, Harvard University, Boston, 1977.

The executive functions at the corporate office are clearly different. The conglomerate firm appears to be concerned primarily with resource allocation between divisions and the lack of Research and Development, Marketing, Manufacturing and

Purchasing functions at head office level is a strong indicator that these functions are better placed at the divisional level under this particular management strategy. Unfortunately, no in-depth study of highly diversified South African firms and their structural and hierarchical relationship with Head Offices exists and some difficulty in categorizing "unrelated" firms into the "unrelated passive" and "conglomerate" categories was experienced. In order to obtain more information a number of experienced investment analysts in South African Investment Banks, stockbroking firms and colleagues were consulted. The conglomerates were identified largely by their aggressive, numerous and often large, successful take-over activities. All other "unrelated" firms were classified as "unrelated passive".

5.3.3. Summary of the Strategic Category System

The four basic categories developed by Wrigley were thus refined by Rumelt to yield a total of nine strategic categories. These are:

- | | |
|---------------------|---------------------|
| - Single Business | |
| - Dominant Business | - Vertical |
| | - Constrained |
| | - Linked |
| | - Unrelated |
| - Related Business | - Constrained |
| | - Linked |
| - Unrelated Bus. | - Unrelated passive |
| | - Conglomerate |

The following is a summary of definitions and the categorization methodology employed:⁹

A firm's diversification strategy is defined as its commitment to diversity per se together with the strengths, skills or purposes that span this diversity, as evidenced by the way in which business activities are related one to another.

The primary measure of diversity is taken to be the specialization ratio, defined as the proportion of a firm's revenues that is attributable to its largest discrete product-market activity. A discrete business (or product-market activity) is one which is strategically independent of the firm's other businesses in the sense that basic changes in its nature and scope can be made without meeting constraints imposed by other of the firm's businesses and without materially affecting the operation and strategic direction of other of the firm's businesses.

Businesses are related to one another when a common skill, resource, market, or purpose applies to each. A firm's related ratio is defined as the proportion of its revenues that are attributable to the largest group of businesses that are related in some way to one another. Each member of this group need only be related to one other business in the group (linked relatedness), though it may be related to all and all may be directly related to one another (constrained relatedness).

The vertical ratio is defined as the proportion of a firm's revenues attributable to all of the by-products, intermediate products and final products of a vertically integrated sequence of manufacturing operations.

In any given year a firm's diversification strategy may be described as corresponding to one of the following categories:

- I. Single business (abbreviated "S" or "SING") - firms that are basically committed to a single business. Among non-vertically integrated firms (VR 0.7), Single business companies are those with specialization ratios of 0.95 or more. Among vertically integrated firms (VR 0.7), those that have an end-product business that contributes 95% or more of total revenues are classified as Single business firms.
- II. Dominant business (abbreviated "D" or "DOM") - firms that have diversified to some extent but which still obtain the preponderance of their revenues from a single business. Among non-vertically integrated firms (VR 0.7), those with specialization ratios greater than or equal to 0.7 but less than 0.95 are Dominant business firms. Among vertically integrated firms (VR 0.7), those that do not qualify as Single business companies fall in the Dominant category.
 - A. Dominant Vertical (abbreviated "DV") - vertically integrated firms (having vertical ratios of 0.7 or more) which produce and sell a variety of end-products, no one of which contributes more than 95% of total revenues.
 - B. Dominant Constrained (abbreviated "DC") - non-vertical Dominant business firms that have diversified by building on some particular strength, skills, or resource associated with the original dominant activity. In such firms the preponderance of the diversified activities are all related one to another and to the dominant business.
 - C. Dominant Linked (abbreviated "DL") - non-vertical Dominant business firms that have diversified by building on several different strengths, skills, or resources or by building on new strengths, skills or resources as they are acquired. In such firms the preponderance of the diversified activities are not directly related to the dominant business but each is somehow related to some other of the firm's activities.

- D. Dominant Unrelated (abbreviated "DU") - non-vertical Dominant business firms in which the preponderance of the diversified activities are unrelated to the dominant business.
- III. Related business (abbreviated "R" or "REL") - non-vertically integrated firms which are diversified, having specialization ratios less than 0.7, and in which diversification has been primarily accomplished by relating new activities to old so that the related ratio is 0.7 or more.
- A. Related Constrained (abbreviated "RC") - Related business firms that have diversified chiefly by relating new businesses to a specific central skill or resource and in which, therefore, each business activity is related to almost all of the other business activities.
 - B. Related Linked (abbreviated "RL") - Related business firms which have diversified by relating new businesses to some strength or skill already possessed, but not always the same strength or skill. By diversifying in several directions and exploiting new skills as they are acquired, such firms have become active in widely disparate businesses.
- IV. Unrelated business (abbreviated "U" or "UNRL") - non-vertical firms which have diversified chiefly without regard to relationships between new businesses and current activities. Such firms are defined by a related ratio of less than 0.7.
- A. Unrelated Passive (abbreviated "UP") - Unrelated business firms that do not qualify as Acquisitive Conglomerates (see definition below).
 - B. Acquisitive Conglomerates (abbreviated "AC") - Unrelated business firms which have aggressive programs for the acquisition of new unrelated businesses. More specifically, such firms are defined as having, over the past five years, (1) had an average growth rate in earnings per share of at least 10% per year, (2) made at least five acquisitions, at least three of which took the firm into businesses unrelated to past activities, and (3) issued new equity

shares whose total value (using market prices at the time of issue) was at least as great as the total amount of common dividends paid during the same period.

5.4. The Data Sources and Variables

5.4.1. Data Sources

Data on all the 278 firms which constitute the total research population were obtained from a variety of sources. The primary sources of basic financial data were:

- 5.4.1.1. The Bureau of Financial Analysis, University of Pretoria
- 5.4.1.2. Investor's Guide (Pty) Ltd.
- 5.4.1.3. The Johannesburg Stock Exchange
- 5.4.1.4. Published financial data

5.4.2. Variables

All data was placed on computer disc files and tape and included:

- 5.4.2.1. The Company name
- 5.4.2.2. A code number for each firm
- 5.4.2.3. The strategic category into which the firm fell
- 5.4.2.4. The strategic category based on Wrigley's four major categories - Single, Dominant, Related or Unrelated
- 5.4.2.5. Industry code number for each company

5.4.2.6. Company ranking in terms of size based on Sales, Fiscal Assets and Total Invested Capital

5.4.2.7. Financial data for each of the years 1970-1976

Some 66 difference variables were obtained for each firm for each year. These variables were then manipulated to produce the following variables:

GTINC : The annual mean uniform growth rate of Total Invested Capital over the period 1970-1976 inclusive

GCFLOW: The annual mean uniform growth rate in Cash Flow. Cash flow is defined as Net Profit after tax plus Depreciation

GSALES: The annual mean uniform growth rate in Net Sales

GTDBT : The annual mean uniform growth rate in Total Debt. Total Debt is defined as Long Term Debt plus all Current Liabilities

GDPS : The annual mean uniform growth rate in Dividends Per Share adjusted for splits and capitalization issues

GEBIT : The annual mean uniform growth rate in Earnings Before Interest and Taxes.

GPAT : The annual mean uniform growth rate in Net Profit after Tax before extraordinary items

GPATP : The annual mean uniform growth rate in Net Profit after Tax and after Preference Share Dividends

GBVEQ : The annual mean uniform growth rate in the Book Value of Ordinary Shareholders Equity

GEPS : The annual mean uniform growth rate in Earnings per Ordinary Share, adjusted for all splits and capitalization issues

BETA : The Beta Value for each share that averaged a trading volume on the Johannesburg Stock Exchange in excess of 200,000 per annum for the years 1975 and 1976. Saloner and Strebel have shown "that at average trading volumes of less than approximately 200,000, systematic risk is volume dependent....so that the ex-post systematic risk is determined by trading volume rather than the inherent riskiness of the share."¹⁰ These findings were based on a study of the Johannesburg Stock Exchange. Although there is a continuing debate as to the efficiency of the Johannesburg Stock market, the evidence points to volume dependency.¹¹ Thus only the highest volume shares in the industrial sector were included. The beta values were obtained by regressing the weekly returns of each share versus the all market index. Dividends were not included in the returns data. Sharpe and Cooper have shown that the non-inclusion of dividend returns does not affect the overall return in any meaningful way.¹² All returns were adjusted for share splits and capitalization issues.

GTFE : The annual mean uniform growth rate of Total Funds Employed

ROIAT : Arithmetic average return on Invested Capital over the period. The return was calculated as follows:

$$ROI = \frac{\text{Net Profit after tax plus after tax cost of interest}}{\text{Total Liabilities less Current liabilities.}}$$

ROEAT : Arithmetic average return on Shareholders Equity over the period. The calculation was as follows:

$$ROE = \frac{\text{Net Profit after tax and after Preference Dividends}}{\text{Total Shareholders Equity}}$$

ROA : Return on Total Assets Employed in 1976. The calculation was as follows:

$$ROA = \frac{\text{Net Profit after tax plus after tax cost of interest}}{\text{Total Assets}}$$

ROI : Return on Invested Capital for 1976. The calculation was as follows:

$$\text{ROI} = \frac{\text{Net Profit after tax plus after-tax cost of interest}}{\text{Total Liabilities less Current Liabilities}}$$

CFLOW : Cash flow in 1976. This is calculated as Net Profit after tax plus depreciation.

DRAT : Debt Ratio in 1976. This is calculated as follows:

$$\text{Debt-Ratio} = \frac{\text{Total Long Term and Short-Term Debt}}{\text{Total Liabilities}}$$

CFTIC : Cash flow to Total Invested Capital in 1976. This was calculated as follows:

$$\text{CFTIC} = \frac{\text{Net Profit after tax plus Depreciation}}{\text{Total Liabilities less Current Liabilities}}$$

CFTDT : Cash Flow to Total Debt in 1976. This was calculated as follows:

$$\text{CFTDT} = \frac{\text{Net Profit after tax plus Depreciation}}{\text{Total Long Term Debt plus Current Liabilities}}$$

SDROI : The Standard Deviation of Return on Invested Capital

SDROE : The Standard Deviation of Return on Equity

SDEPS : The Standard Deviation of Earnings per Share

ADBET : Beta adjusted for Leverage. Hamada has shown that:¹³

$$B_{\text{unlevered}} = B_{\text{levered}} \left[\frac{\text{value of levered equity}}{\text{value of unlevered equity}} \right]$$

$$\text{Thus: } B_u = B_L \left(\frac{E_L}{E_u} \right)$$

where, E_L = levered equity and
 E_u = unlevered equity

In an efficient market, the advantage of debt is derived from the tax shield - thus increased debt to replace equity will yield an advantage of :

$D(1 - t)$
 where, D = Debt and
 t = tax rate

$$\text{Thus, } B_u = B_L \left[\frac{E_L}{E_L + D(1-t)} \right]$$

5.4.3. Classification of Variables

The variables calculated and defined in section 5.4.2. above were grouped into three major groups to facilitate analysis. These were:

- 5.4.3.1. Growth Variables
- 5.4.3.2. Return Variables, and
- 5.4.3.3. Risk Variables

The variables were classified as follows:

<u>Growth Variables:</u>		GTINC	- Growth of Total Invested Capital
		GCFLOW	- Growth of Cash Flow
		GSALES	- Growth of Sales
		GTDBT	- Growth of Total Debt
		GDPS	- Growth of Dividends per Share
		GEBIT	- Growth of Earnings before interest and taxes
		GPAT	- Growth of Profit after Tax
		GPATP	- Growth of Profit after Tax and after Preference Dividends
		GBVEQ	- Growth of Book Value of Equity
		GEPS	- Growth of Earnings Per Share
		GTFE	- Growth of Total Funds Employed
<u>Return Variables:</u>		ROIAT	- Return on Invested Capital after Tax
		ROEAT	- Return on Equity after Tax
		ROA	- Return on Total Assets for 1976
		ROE	- Return on Equity for 1976
		ROI	- Return on Invested Capital for 1976
<u>Risk Variables:</u>		CFLOW	- Cash Flow for 1976
		DRAT	- Debt Ratio for 1976

CFTIC	- Cash Flow to Total Invested Capital
CFTDT	- Cash Flow to Total Debt
SDROI	- Standard Deviation of Return on Invested Capital for period 1970-1976
SDROE	- Standard Deviation of Return on Equity for period 1970-1976
SDEPS	- Standard Deviation of Earnings Per Share for period 1970-1976
Beta	- Beta Value for 1976
ADBET	- Beta Adjusted for Leverage using "Hamada's" formula

5.4.4. The Major Research Hypotheses

5.4.4.1. Hypotheses Relating to Growth

Based on the research by Lynch and others, conglomerate firms have been shown to grow very rapidly. This is due to their aggressive, take-over orientated development pattern. It was thus hypothesized that:

Hypothesis G1: Conglomerate firms will grow most rapidly on all variables except Earnings per Share (GEPS) and Dividends per Share (GDPS).

These two variables, namely GEPS and GDPS are equity related and since conglomerates tend to effect their acquisitions through equity managements, these variables will exhibit slower growth rates. Since these firms will issue equity to acquire companies it is hypothesized that:

Hypothesis G2: Conglomerate Firms will experience the most rapid growth in Book Value of Equity (GBVEQ).

These hypotheses may appear to be in conflict with the traditional view of the conglomerate firm developed during the boom years of the late 1960s. Yet when the particular economic conditions experienced in South Africa are taken into consideration, it is clear that the Stock Exchange has been depressed and conglomerates have found it very difficult to issue paper and play the fabled "money game" so popular in the decade of the 1960s. Thus although these firms have continued with their unrelated acquisition strategies, greater amounts of equity have been issued to pay for these acquisitions. The impact on earnings per share can thus be expected to be deleterious.

In general, given the relatively small size of the South African market for almost all products, those firms that concentrate their efforts in a relatively few areas will not grow as rapidly as firms that are branching out into new and more diverse business areas. Thus it is hypothesized that:

Hypothesis G3: The more diversified firms occupying those strategies deemed to be more diversified will exhibit growth rates greater than less diversified strategies. Thus the rank order in terms of growth variables GTINC, GTFE, GCFLOW and GSALES will be Unrelated, Related, Dominant and Single.

Following directly on Rumelt's findings which provide the most meaningful theoretical and empirical basis despite the fact that his research was carried out in a highly developed

and mature economy - it was hypothesized that:

Hypothesis G4: The Dominant Constrained group will produce the best overall performance from a growth point of view, and produce at least above average performance.

Furthermore, growth is partly dependent on the firms' ability to finance expansion. It thus hypothesized that the high growth strategies, namely the Unrelated and Related groups, will expand their dividends relatively slowly in comparison to the slower growing strategies - namely the Single and Dominant groups. Thus:

Hypothesis G5: The Unrelated and Related categories will produce a slower rate of dividend growth (GDPS).

Given the fact that the South African economy has been relatively depressed over the period 1970-1976, those firms that were tied to the fortunes of a particular industry will perform at levels considerably below average. It is hypothesized that:

Hypothesis G6: Single Business and Dominant-Vertical firms will have growth rates significantly lower than other strategic categories.

According to the Product Life Cycle theory, products will grow rapidly and growth will slow as the market matures and finally reaches saturation, and eventually growth will become negative as the product declines. A firm which forecasts a mature market for its product will seek to escape from its

traditional industry with its declining growth and profitability prospects. On the other hand, management may be deficient and made to cope with the competitive situation in the industry. Such firms will also seek to escape from their traditional industry and will seek "greener" pastures that are not related to the major product-market area. Such firms, especially if management is weak, will be unable to build on skills already possessed in the firm as they will have sought product-markets unrelated to their existing areas. On the other hand, if a firm had decided to develop diversification strategies that build on the "core skills" existing in the firm by adopting a strategy of "constrained" or "linked" diversification, it can be expected to be more successful than a firm moving into unrelated areas from the same base. A firm that adopts a "conscious strategy" in that strengths, weaknesses and opportunities are carefully appraised and then follows a strategy which will capitalize on those strengths, overcome the weaknesses wherever possible and exploit opportunities is likely to have a greater chance of success than its "escaping" counterpart. It is thus hypothesized that:

Hypothesis G7: Dominant Constrained and Dominant Linked firms will achieve superior performance in terms of growth than Dominant-Unrelated firms.

5.4.4.2. Hypotheses Relating to Returns and Profitability

A major requirement for achieving superior profitability and hence returns is that management fully understands the markets, technology and products produced and marketed by the firm. Conglomerate and Unrelated-Passive firms by their very nature do not possess the skills required to manage extremely diverse operations. The Unrelated-Passive group conforms reasonably closely to those firms that Berg has termed "diversified majors" and are likely to operate the relatively large corporate head office staff that were found to characterize this group. The Unrelated-Passive category can thus be expected to understand and therefore manage diverse operations more effectively than the conglomerate group who appear to seek only financial synergies. It is thus hypothesized that:

Hypothesis R1: Unrelated-Passive firms will produce superior returns than conglomerate firms.

Hypothesis R2: The "constrained" strategies will produce superior returns than "linked", "unrelated", vertical and single business strategies.

The Conglomerate category can be expected to be managed more aggressively than other categories. Such aggressiveness will be evidenced by more "aggressive" use of debt to gear lower return on investment and asset figures to higher than average returns on equity. It is thus hypothesized that:

Hypothesis R3: Conglomerate firms will have experienced lower returns on investment but will

be more highly geared than the less aggressive and more industry bound Single and Dominant categories.

Overall, it is theorized, based on Rumelt's findings, that the return on invested capital will be as hypothesized in hypotheses R4 and R5:

Hypothesis R4: The rank order from the major strategic categories in terms of return on invested capital will be Related, Single, Dominant and Unrelated.

Hypothesis R5: The rank order for the strategic categories in terms of invested capital will be - Dominant, Constrained, Related-linked, Conglomerate, Unrelated, Dominant-linked and Dominant-vertical.

5.4.4.3. Recent Studies of Conglomerate Performance and Risk

In this study, risk has been defined as variability of return and has been divided into two components - systematic or market-related and unsystematic or non-market related risk. Conglomerate firms are regarded by investment analysts to be a form of "mutual fund" since they are believed to be able to exert relatively little influence over their diverse portfolio of businesses since corporate head offices are typically small and cannot be expected to understand the problems and opportunities of the divisions. This has resulted in a number of research efforts which have compared conglomerate performance with that of mutual funds. These will be reviewed below in order to lay the foundation for the research

hypotheses in this study.

5.4.4.3.1. The Smith and Schreiner Study ¹⁴

This is the earliest study of conglomerate performance in relation to modern portfolio theory. Smith and Schreiner also experienced difficulties in identifying conglomerate firms. In their sample of 19 conglomerate firms, 9 were also included in Rumelt's study. Of the 9 firms classified as conglomerate by Smith and Schreiner, Rumelt classified only 4 into the same category. The other 5 were classified by Rumelt as Dominant-Constrained, Related-Constrained, Dominant-Unrelated and Unrelated-Passive. If Rumelt's classification system is accepted as the more meaningful, then this represents a 56 percent error by Smith and Schreiner.

Smith and Schreiner conclude that "with few exceptions, the mutual funds have attained more efficient diversification than the conglomerates." ¹⁵ They do, however, recognise that mutual funds have certain features that may serve to explain their superior performance in their simulation study which sought to test diversification efficiency by estimating how "close" they were able to come to an optimal portfolio. They note:

(The mutual funds have attained more efficient diversification as expected) because of their comparative advantage in investment flexibility, divisible investments, and their ability to invest in dominant firms excluded from the security populations of conglomerates. ¹⁶

Smith and Schreiner do nevertheless regard the conglomerate performance favorably when they state:

...some of the conglomerates appear to have done a commendable job of selecting unrelated industries so as to take advantage of low correlations.....it appears that certain of the conglomerates have succeeded remarkably well in their diversification objective.¹⁷

Although their study was not directly comparable to the objective of this study, the Smith and Schreiner paper does suggest that conglomerates may be able to obtain "positions" relatively close to the efficient, optimal portfolio. This means that the conglomerate will be able to provide higher returns at lower risk as suggested by portfolio theory.

5.4.4.3.2. The Weston and Mansinghka Study¹⁸

This 1971 paper also experienced difficulties in the definition and identification of the conglomerate firms and made the "classic" error by using the 1968 SIC Industry Categories as a screen to identify the firms. A final sample of 63 firms were selected. This 1968 sample was compared to Rumelt's 1969 sample of conglomerate firms and a total of 27 firms were common to both samples. Only 11 firms were classified by both Rumelt and Weston and Mansinghka. Once again, if Rumelt's classification system is taken as correct, then Weston and Mansinghka have included 16 firms in their sample of conglomerates that are not true conglomerates. This is an error of over 59 per cent.

Weston and Mansinghka compared both growth rates and return performance of their sample (whose performance is severely biased downwards since, of the 16 incorrectly classified firms, 8, or 50 per cent, belonged to Rumelt's lowest performing category, the Unrelated-Passive group), to two randomly selected samples of industrial firms and industrial and non-manufacturing firms.

They find that the "means of the growth rates were significantly higher for the conglomerates as compared with sample 1 or sample 2 separately or jointly."¹⁹ The authors then dismiss these findings which were all significant at the 0.01 level over the period 1960-1968 (apart from the earnings per share growth rate which was significantly superior at the 0.05 level) by stating, "No great importance is attached to these measurements of the differential growth rates."²⁰

Weston and Mansinghka then revert to a cross-sectional analysis of the returns for 1968. They also calculate returns data for 1958 but this is hardly relevant since it is generally accepted that apart from a few exceptions, the conglomerate movement only gained momentum during the 1960s. Rumelt has shown, for example, that only 1.2 per cent of the "Fortune 500" could be classified as acquisitive conglomerates in 1959.²¹ Their findings are presented in Table 5-4.

Table 5-4

Weston-Mansinghka Returns Results: Conglomerates
vs. Control Samples, 1968

	<u>Conglomerates</u>	<u>Industrial Control Sample</u>	<u>Industrial and Non- Manufacturing Control Sample</u>
EBIAT/TA	10.4	8.5	7.6
EBIT/TA	15.1	15.6	13.3
Net Income/Net Worth	13.3	12.4	12.0
Net Profit/Net Worth	14.2	12.4	12.2

- EBIAT = Earnings before Interest but after Taxes
- TA = Total Assets
- EBIT = Earnings before Interest and Taxes

Source: Weston, J. Fred, and Mansinghka, Surenda K., "Test of Efficiency Performance of Conglomerate Firms," Journal of Finance, Volume 26, September 1971, p. 926.

The differences between the means are not significant yet for three of the four measures the conglomerate performance was greater than that of the control samples. Weston and Mansinghka find that:

As compared with industrial firms, therefore, the conglomerate firms employed higher debt ratios, both in 1958 and in 1968. In addition, as compared with both samples, the debt ratios of the conglomerate firms grew more rapidly during the decade.²²

A number of other comparisons of the Weston-Mansinghka

"conglomerates" with Forbes and Fortune 500 firms are made and although no statistically significant differences are obtained - all the longitudinal results show the "conglomerates" outperforming the other samples.

Weston and Mansinghka conclude that their findings are "evidence consistent with the successful achievement of defensive diversification by the conglomerate firms."²³ This conclusion appears to be the result of their findings which are based on a sample which has serious limitations when viewed from a managerial point of view. The authors imply that conglomerate managers are "defensively" oriented. When the evidence of the managerial philosophies of the men who have built the "true" conglomerate firms suggests exactly the opposite!

The conclusion that must be drawn from the Weston and Mansinghka paper is that the authors lack of managerial orientation has allowed them to introduce bias into their sample and draw conclusions which run counter to the observed behavior of the group they describe.

5.4.4.3.3. The Melicher and Rush Study²⁴

This study also suffers from the lack of the researchers' ability to view conglomerates from a managerial perspective. The method of classification used in this study are vague and the major criterion for inclusion into the conglomerate group

sample was that "Moody's Industrial Manuals" regard the firm as an industrial firm, that the firm be listed on the Standard and Poor's annual and quarterly data tapes. Once again, the findings indicate that conglomerate performance from a return point of view is not significantly superior although the conglomerates produced superior (although still not statistically significant) returns in most of the years studied. Melicher and Rush confirm that Weston and Mansinghka finding that conglomerates used debt aggressively to improve returns to equity. They summarize as follows:

For the entire period, the average standard deviation for conglomerate firms was higher than for non-conglomerate firms, but the difference was not statistically significant. Conglomerate returns over the same period were higher than non-conglomerate returns, but the difference was not statistically significant. Hence the comparison of conglomerate and non-conglomerate returns and total risk indicates that the two groups were comparable in total risk and provided reasonably comparable investment returns to their investors. An examination of sub-period return and total risk measures generally supports the same conclusion.²⁵

They conclude:

...this study suggests that while conglomerate firms achieved a level of performance comparable to the considered non-conglomerate firms, their performance was not at all outstanding. Hence, conglomerate diversification may be an effective means "for obtaining defensive diversification," but it does not seem to be an effective vehicle for obtaining superior or outstanding performance.²⁶

5.4.4.3.4. The Mason and Goudzwaard Study²⁷

This is the most recent research study in this field and the authors point to the "misleading" nature of the earlier studies. The Mason-Goudzwaard study seeks to match conglomerate performance against randomly selected portfolios where both groups have similar asset structures. Thus this study seeks to explore performance differentials "in terms of asset structure."²⁸ Their methodology follows Weston and Mansinghka's definition of conglomerate firms and some 95 candidate firms were identified and asked, through questionnaires, to provide the percentage distribution of assets among SIC Classifications. Of these 95 candidates, only 22 were useable. Matching portfolios with similar asset structure and composition were then constructed. Mason and Goudzwaard hypothesized that the conglomerates would "significantly outperform or at least perform as well as the portfolio "simply because operating control should confer certain advantages to a diversified portfolio of assets."²⁹

Mason and Goudzwaard conclude that the portfolios outperform the conglomerates in terms of rate of return on assets and to shareholders, a result which is contrary to that hypothesized. An interesting finding is that between 1962 and 1967, the performance of the conglomerate group deteriorated while the portfolios' performance remained level. It had been suggested that a longer time period would be more

appropriate to judge the performance of conglomerates since it may take some years to revitalize a firm. This may well be a valid point since the 1967-1968 period was a very active period in terms of take-over activity and thus a measure of performance in 1968 (as in the Mason and Gondzwaard study) may be misleading. In many cases conglomerate firms would be playing the "portfolio game" and channeling cash from "cash cow" to "question mark" divisions and these investments could well account for the deteriorating performance reported by Mason and Gondzwaard.

5.4.4.3.5. Summary

The above section has reviewed the relevant literature regarding the performance of conglomerate firms. Almost all the studies report considerable difficulty in defining the conglomerate firm and appear to have relied on conventional measures such as the SIC classification system. In essence, these studies have confirmed the findings of Gort - diversification does not appear to contribute to return or risk. The fact that these studies confirm Gort's research is not surprising since they are all based on product/industry-count measures of diversification.

Rumelt's study was the first to attempt to measure the impact of diversification from a managerial perspective. Building on earlier studies that had identified significant

managerial patterns between firms which had adopted different approaches to growth, control and development, his findings show distinct differences in performance and risk between firms with different diversification strategies.

5.4.4.4. Hypotheses Relating to Risk

Given the findings of Smith and Schreiner who concluded that "conglomerates have succeeded remarkably well in their diversification objective" since they appear to be capable of entry into low correlation industries - it is hypothesized that:

Hypothesis V1: Conglomerates will achieve lower rates of returns variability as measured by variables SDEPS, SDROI and SDROE.

Weston and Mansinghka, Melicher and Rush, and Mason and Gondzwaard all report that their conglomerates all employed higher than average debt levels in their capital structures. It is thus hypothesized that:

Hypothesis V2: The conglomerate group will possess higher than average debt ratios than other strategic groups.

It will be assumed that higher levels of diversification indicate a more aggressive and hence more risk oriented management. Thus is it hypothesized that:

Hypothesis V3: The rank order in terms of debt ratio will be Unrelated, Related, Dominant and Single categories.

Beta has been shown to be a relevant measure of the

systematic risk of firms with trading volumes in excess of 200,000 shares per annum on the Johannesburg Stock Exchange. Given that a major reason for diversification is to reduce risk by investing in counter cyclical industries and firms and since the conglomerate group has been shown by Smith and Schreiner to have diversified reasonably efficiently, it is hypothesized that:

Hypothesis V4: Conglomerate firms will have beta values not significantly different from all other firms in the population.

In addition, since dependence on single industry means that firms operating in this industry face high cyclical risks, thus,

Hypothesis V5: The rank order of the strategic categories in terms of beta values will be Single, Dominant, Unrelated and Related.

The Hamada/Rubenstein formulae that eliminate the leverage component of beta values permits an evaluation of the business risk component since risk can be apportioned into financial and business risk components. Thus the business element of risk as measured by the "adjusted beta" should reflect the firms' diversification posture and provide an additional measure of the impact of industry concentration as evidenced by the "specialization ratio". Since the strategy of the firm will have maximum impact on the business risk element it is hypothesized that:

Hypothesis V6: The "business" related risk component as measured by the "adjusted beta" which eliminates the effect of financial leverage and hence financial risk, will produce a rank ordering of strategic categories as follows: Single, Dominant, Related and Unrelated. The Single, Dominant-Vertical and Dominant-Unrelated sub-categories will all exhibit high business risk.

Treynor has suggested that a useful technique to rank portfolios is provided by the following formula³⁰:

$$T = \frac{R_{it} - R_f}{B_i}$$

where: T = Treynor Statistic
 R_{it} = Return on the Share i in period t
 R_f = Risk-free rate of return, and
 B_i = the Beta value for Share i

This statistic relates the excess return earned by the firm (as measured by the return on the share minus what could be earned on a risk free investment) to the systematic risk of the firm. Since conglomerates are believed to be able to produce synergistic effects and improve controls and operations, this group should generate significantly higher "Treynor Statistic" values. Single, Dominant-Vertical, Dominant-Unrelated and Unrelated firms are less likely to obtain synergies since their strategies confine them to the vagaries of particular industries in the case of the Single and Dominant groups whilst in the case of the Unrelated category, the strategy is not designed to capitalize on

"core skills". Consequently, the following hypothesis was proposed:

Hypothesis V7: When measured using Treynor's Statistic, the rank ordering will be as follows: Conglomerate, Related-Constrained, Related-Linked, Dominant-Constrained, Dominant-Linked, Dominant-Vertical, Dominant-Unrelated, Single and Unrelated.

5.5. Summary

This chapter has provided the overall methodology and hypothesis for this study. The major thrust of the research stems from the belief that the overall strategy of the firm must be to provide shareholders and stakeholders with the best return or maximize their wealth by reducing risk whilst maintaining return at some acceptable level. Earlier efforts to explain the reason for the seemingly inexorable trend toward increased diversification have not been successful. These research efforts have shown diversity as measured by the number of industries in which a firm operates, to be a less than satisfactory strategy. Instead of focusing on the number of industries occupied or products produced, this research has taken the view of top management and concentrated on the way that business areas are related in terms of the common "core skills". These skills are not only manufacturing but include pricing, distribution, consumer segments, suppliers, and financial skills. This strategic categorization methodology

has provided meaningful results in the developed economy of the United States. This research will test this methodology using smaller firms and in a less developed economy. In addition, this study will seek to relate returns to risk in a meaningful manner. Research on the impact of strategy on rate of return performance is still in the embryonic stage - but research which explores risk and return in a strategic context is almost non-existent.

The hypotheses developed in this chapter have their origins in the research performed in the United States and, in the main, anticipate the highest growth group to be the conglomerate/unrelated firms while the most profitable firms are expected to come from those firms that have remained reasonably close to their "core-skills" in their diversification efforts. The Single and Dominant-Vertical groups are expected to show low growth, moderate to low returns and high risk. Conglomerates and Unrelated firms are, in keeping with the results predicted by portfolio theory, expected to have relatively low risk profiles since they are believed to have spread their risk over industries with low correlation.

This particular research methodology has not been applied in any economy outside of Rumelt's study in the United States. This study also extends previous work in the field by applying Capital Asset Pricing Model Theory to diversification strategy. The research programme also examines the development of

corporate strategy in the context of a developing economy and by extending the research population to include all firms quoted on the Johannesburg Stock Exchange is not susceptible to statistical errors. By exploring the impact of strategy on financial performance and risk, which are the major determinants of share prices and ultimately shareholder wealth, it is anticipated that the research will yield important results and conclusions which will serve, not only to explain, but to guide managerial decision-making.

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6. THE RESEARCH FINDINGS

6.1 Introduction

The purpose of this Chapter is to report and interpret the analyses of the company data according to the methodology described in Chapter 5. The methodological approaches presented in Chapter 5 involved the detailed analysis of the published financial data of nearly four hundred companies. Each company's annual report and related company data which was available in libraries was analysed for each of the seven years over which performance was measured.

The mean annual growth rate for 23 variables were calculated for every company which had followed a particular "strategy" over the period 1970-1976 inclusive. This involved over 6,000 regression calculations alone. The mean and standard deviation were then calculated for each major strategic category and each strategic sub-category. Finally, 11 growth variables were selected as being most representative. In addition, a further 25 variables were calculated to assist in the interpretation of trends and unexpected findings. The major focus was on the performance differences between the major strategic categories and the strategic sub-categories and a number of interesting and significant issues, apart from those expected from the testing of the hypotheses developed in Chapter 5, were explored.

This chapter reviews the development of the major hypotheses and then proceeds to the testing of the hypotheses after

highlighting the strategic category breakdown comparison between all the quoted South African industrial firms and samples drawn from major developed economies.

6.2. Review of the "A Priori" Hypothesis

The "a priori" hypothesis developed in Chapter 5 were divided into three major groups. These were:

- 6.2.1 Hypotheses relating to Growth,
- 6.2.2 Hypotheses relating to Returns, and
- 6.2.3 Hypotheses relating to Risk.

The major underlying theme upon which these hypotheses are based stem from the conviction that the management practitioners are guiding their organizations instinctively and intuitively toward diversification. Academic research has been shown, at least for the large part, to be unable to explain the steady trend toward increased diversification in corporate activity. Some researchers have concluded that these moves are a defensive reaction by management.¹ However, this conclusion is a rather weak attempt to explain their findings since the management teams of conglomerate firms are typically highly aggressive and entrepreneurial by nature - hardly a breed of manager to behave defensively. Diversification is believed to provide benefits as well as causing problems of administration, integration and control. The major benefit according to theory is that total risk of variability is reduced as investment funds

are spread over different business areas and industries. The "naive" view of diversification holds that investment should be spread over as many areas as possible and that very widely diversified holdings are less risky than a lower level of diversification. However, as Wagner and Lau and others have shown, there is little to be gained by spreading investments over more than 20 investments.² It will be recalled that Wagner and Lau find that a portfolio of 15 shares has a correlation with the overall market of $r = 0.80$ and an increase in the number of holdings of 33.3 percent to 20 shares improves the correlation to $r = 0.83$ - an improvement in the correlation coefficient of only 0.0375 percent. The number of shares or investments in the portfolio are less important than the degree of correlation between the securities. The key factor is negatively correlated returns. Modern theory has also shown that very wide diversification could eliminate risk completely. Only non-systematic risk can be diversified away and the completely diversified firms would still experience the swings in the total market. A less widely diversified firm which has brought its "core skills" to bear in carefully selected market may be able to provide better returns at a comparable level of risk and thereby create value and increase shareholder wealth.

The conglomerates have sought to reduce earnings variability through the external entry route into unrelated areas, and as

Smith and Schreiner have shown, have been able to structure reasonably efficient portfolios.³ Thus this group are expected to produce the highest growth rates as moderate levels of risk.

While the United States conglomerate experience has shown that many of these firms developed out of firms that found themselves in declining and/or unprofitable markets, another group of firms appear to have responded differently to industry or product life cycle effects. Instead of aggressive entry into unrelated areas, these firms have entered markets that may appear unrelated to the non-managerially orientated observer, but that are related to the declining product or industry. An example is the case of a textbook publisher entering the microfilm industry. This would be regarded as an "unrelated" move by many observers but the marketing viewpoint suggests that "textbooks" will become unattractive as an industry product-market area due to rising costs and other factors - but microfilm may be the "textbook" of the future. Thus the firm has remained very "close" to the consumer need being satisfied but is using a different product to do so. Thus the firm has developed a new product using new technology for the same consumer, and has entered a related market that may be causing the decline in the present industry. This response to industry and product risk is vastly different to that adopted by the conglomerate. It is thus hypothesized that related firms, and particularly the "constrained" group, would produce superior returns.

Another group of firms responded to industry and product outlooks by concentrating on the "sequence of production" and integrated operations vertically. Other firms responded by undertaking a "half-hearted" diversification drive - these firms are either in the process of diversifying more meaningfully or have experimented with a new "fad" and now have "cold feet." These firms, classified as the "Dominant-Unrelated" group are expected to perform poorly on all measures. Their strategy appears to lack clear definition and purpose and such firms are likely to pay the price of lack of commitment.

6.3. The Overall Findings

6.3.1 The Composition of the Population by Strategic Groups

As discussed in Chapter 5, firms were classified into their strategic categories for the period 1970-1976 inclusive. These findings are of interest since a similar breakdown has been performed by Harvard University researchers in the United States, the United Kingdom, France, West Germany and Italy.⁴ Unfortunately, these studies were concerned with a different time span and only the United States' study was concerned with inter-strategy financial performance. The majority of these dissertations explored the "stages of development" theory within the framework provided by these different economies. The comparison of the South African breakdown by strategic category

provides useful insight into what may be described as the "stage of development" of South African corporate enterprise. The foreign findings are directly comparable with those of this study since all used Wrigley's basic framework. The findings for France, West Germany, the United Kingdom and Italy are given in Table 6-1.

Table 6-1

The Evolution of Strategic Categories Over
Time in France, West Germany, the United Kingdom
and Italy: 1950-1970

	1950 % of Firms in Category	1960 % of Firms in Category	1970 % of Firms in Category
A. <u>France</u>			
Single	42.0%	28.0%	16.0%
Dominant	21.0	27.0	32.0
Related	33.0	40.0	42.0
Unrelated	4.0	5.0	10.0
TOTAL	100.0%	100.0%	100.0%
B. <u>West Germany</u>			
Single	34,0%	22,0%	22,0%
Dominant	26,0	28,0	22,0
Related	32,0	40,0	38,0
Unrelated	7,0	9,2	18,0
TOTAL	100.0%	100.0%	100.0%
C. <u>United Kingdom</u>			
Single	33.7%	18.8%	6.0%
Dominant	40.2	36.5	34.0
Related	23.9	39.6	54.0
Unrelated	2.2	5.1	6.0
TOTAL	100.0%	100.0%	100.0%
D. <u>Italy</u>			
Single	30,0%	23,0%	10,0%
Dominant	24,0	20,0	33,0
Related	43,0	53,0	52,0
Unrelated	4,0	3,0	5,0
TOTAL	100.0%	100.0%	100.0%

Sources: Dyas, Gareth P., "The Strategy and Structure of French Industrial Enterprise"; Thannheizer, Heinz T., "The Strategy and Structure of German Industrial Enterprise,"; Channon, Derek F., "The Strategy and Structure of British Enterprise"; Pavan, Robert J., "The Strategy and Italian Enterprise", Doctoral Dissertations, Graduate School of Business Administration, Harvard University, Boston,

The comparison between the South African results and the United States' experience is even more revealing since Rumelt's methodology expands Wrigley's four major categories into nine sub-categories.⁵ See Table 6-2 and Figure 6-5 below.

Table 6-2

Major and Sub-Category Strategic Groups
in the United States: 1949, 1959 & 1969

Strategic Category	Percentage in Each Category			
	<u>United States</u>			<u>South Africa</u>
Major Groups	1949	1959	1969	1976
Single Business	34,5	16,2	6,2	35,3
Dominant Business	35,4	37,3	29,2	39,2
Related Business	26,7	40,0	45,2	12,9
Unrelated Business	3,4	6,5	19,4	12,6
<u>Sub-Categories</u>				
Single Business	34,5	16,2	6,2	35,3
Dominant-Vertical	15,7	14,8	15,6	7,9
Dominant-Constrained	18,0	16,0	7,1	18,9
Dominant-Linked	0,9	3,8	5,6	7,9
Dominant-Unrelated	0,9	2,6	0,9	5,0
Related-Constrained	18,8	29,1	21,6	6,8
Related-Linked	7,9	10,9	23,6	5,8
Unrelated-Passive	3,4	5,3	8,5	6,8
Conglomerate	0,0	1,2	10,9	5,8

Source: Rumelt, Richard P., "Strategy, Structure and Economic Performance", Doctoral Dissertation, Graduate School of Business Administration, Harvard University, Boston, 1972, Page 90.

6.3.2. The Financial Performance of the Total Population

The data presented in Table 6-4 are the mean values and related statistics of the total population for each of the variables specified in Chapter 5.

Table 6-4

Financial Performance Statistics for Total Population

Variable		Mean	Standard Deviation
Growth of Total Invested Capital	GTINC	.1435	.1375
Growth of Cash Flow	GCFLOW	.1362	.2744
Growth of Sales	GSALES	.1150	.1257
Growth of Total Sales	GTDBT	.1810	.1600
Growth of Dividends per Share	GDPS	.0778	.1591
Growth of Earnings Before Interest and Taxes	GEBIT	.1866	.2143
Growth of Profit After Tax	GPAT	.1641	.2973
Growth of Profit After Tax and After Preference Dividends	GPATP	.1640	.2972
Growth of Book Value of Equity	GBVEQ	.1376	.1264
Growth of Earnings Per Share	GEPS	.1203	.2081
Growth of Total Funds Employed	GTFE	.139	.110
Return on Invested Capital After Tax	ROIAT	.1410	.1830
Return on Equity After Tax	ROEAT	.2401	.1730
Beta	BETA	.887	.510
Beta Adjusted for Leverage Unlevered)	BETUL	.659	.3798

These variables were calculated from the raw data according to the procedures described in Chapter 5. Computer programs were written expressly for this research and included data manipulation and mean and standard deviation calculations. The advanced statistical procedures were performed by subroutine programs drawn from "The Statistical Package for the Social Sciences" (SPSS) and the "Analysis of Quantitative Data" (AQD) programs at the Graduate School of Business Administration, Harvard University. The financial performance of the total population is somewhat higher than anticipated if taken at face value. However, the fact that the data have not been adjusted for inflation should be borne in mind and thus the performance in real terms was relatively poor. The overall corporate compound growth rate has averaged around 14 percent per annum. Total of Funds Employed averaged growth of 13.9 percent, Total Invested Capital averaged growth of 14.5 percent and Profit After Tax grew an average of 16.2 percent. These growth rates are all consistent with one another. The relatively high growth of Earnings Before Interest and Taxes of 18.1 percent does not, however, flow through to the growth of Profit after Tax of 16.2 percent. This is probably due to rising interest rates and corporate taxes over this period. An interesting and disturbing feature revealed by the overview of total population performance is that the Growth of Total Debt is grown at 18.4 percent per annum while Growth of Book Value of

Equity has grown at only 14.0 percent. This observation prompted an investigation of the trend in Debt Ratios for the population and strategic categories. Table 6-5 presents these results.

Table 6-5

Debt Ratios by Strategic Category Over Period 1970-1976

Strategic Category	Year						
	1970	1971	1972	1973	1974	1975	1976
Single	41.7	42.5	43.5	42.9	45.6	44.4	43.8
Dominant-Vertical	42.6	43.8	43.6	45.7	44.3	45.5	46.0
Dominant-Constrained	44.8	46.5	47.0	47.7	49.6	49.2	49.3
Dominant-Linked	44.0	43.3	41.5	35.3	38.0	39.7	44.6
Dominant-Unrelated	38.5	40.9	38.8	40.2	42.6	42.2	43.6
Related-Constrained	39.8	43.9	46.0	44.5	49.2	50.7	47.0
Related-Linked	42.8	48.0	47.1	48.8	50.8	52.5	47.2
Unrelated-Passive	41.7	47.4	51.1	50.8	53.1	53.6	55.0
Conglomerate	41.7	44.5	44.3	45.9	48.4	50.0	48.0
TOTAL POPULATION	42.3	44.5	44.5	44.2	46.9	47.6	46.8

Note: Debt Ratio is defined as:

$$\frac{\text{Long Term Debt Plus Current Liabilities}}{\text{Total Liabilities}}$$

This trend is considered ominous. All categories show a continual worsening of the debt ratio. This trend may be partly explained by the effects of inflation and inadequate depreciation allowances. This means that firms are forced to borrow to finance asset replacement. The categories with most serious deterioration in the Debt Ratio are the Related-Constrained and Unrelated-Passive groups with the percentage of debt in the capital structure

rising 39.8 percent to 47.0 percent (an increase of 7.2 percent) and 41.7 percent to 55.0 percent (an increase of 13.3 percent) respectfully.

The evidence of deteriorating debt ratios leads to the conclusion that firms are finding the equity sources of new equity and retained earnings inadequate. The Johannesburg Stock Exchange has been a particularly poor source of new equity in the form of eight issues over the 1970-1976 period and thus firms have been forced to rely mainly on retained earnings. Thus it seems reasonable to hypothesize that under relatively depressed economic conditions - especially after the "oil crisis" of late 1973, firms would reduce their dividend payments and the dividend payout ratios would decline. A summary of dividend payout ratios for the strategic categories is given in Table 6-6.

Table 6-6

Dividend Payout Ratios By Strategic
Categories

Strategic Category	Year						
	1970	1971	1972	1973	1974	1975	1976
Single	.596	.579	.544	.574	.676	.593	.629
Dominant-Vertical	.671	.432	.585	.622	.586	.616	.570
Dominant-Constrained	.599	.585	.582	.639	.675	.681	.632
Dominant-Linked	.597	.554	.589	.670	.720	.696	.760
Dominant-Unrelated	.618	.472	.393	.256	.461	.587	.543
Related-Constrained	.628	.662	.613	.617	.642	.696	.707
Related-Linked	.541	.584	.607	.649	.674	.695	.586
Unrelated-Passive	.508	.436	.484	.599	.663	.660	.679
Conglomerate	.586	.535	.567	.625	.645	.679	.680
TOTAL POPULATION	.599	.565	.554	.607	.663	.650	.647

Note: Dividend Payout Ratio = $\frac{\text{Dividend Per Ordinary Share}}{\text{Earnings Per Ordinary Share}}$

The results are not as expected. Instead of reducing the amount of funds paid to shareholders - firms have tended to increase the percentage paid out as dividends. Only two strategic categories show a decrease in the dividend payout ratio over the period. The Dominant-Vertical and Dominant-Unrelated groups reduced payouts from 67.1 percent to 57.0 percent and 61.8 percent to 54.3 percent respectively. The most rapid increase in dividend payout over the period was made by the Unrelated-Passive group. This group's dividend payout rose from 50.8 percent to 67.9 percent of earnings per share - an increase of 34 percent.

6.4 Testing of the Hypothesis

The testing of the major hypotheses developed in Chapter 5 will be presented in three sections to conform with the general nature of those hypotheses. It will be recalled that the hypotheses were grouped into three groups:

- Hypotheses relating to Growth,
- Hypotheses relating to Returns, and
- Hypotheses relating to Risk.

6.4.1. The Evaluation of Growth Performance

6.4.1.1 Analysis of Means and Standard Deviations

It was hypothesized that:

Hypothesis G1: Conglomerate firms will grow most rapidly on all variables except Earnings per Share (GEPS) and Dividends per Share (DGPS).

The results of the analysis of the growth variables are given in Table 6-7.

It is immediately apparent that the conglomerate group are above the total population mean for every variable. Even more significant is the fact that on three variables, namely Sales, Profits after tax and Total Funds Employed, the conglomerate performance is more than double the population average. On a further four variables, Growth of Total Invested Capital, Earnings before Interest and Taxes, Book Value and Equity and Earnings per Share, Conglomerate Growth exceeds the population mean by more than 50 percent. By any standard, this is an impressive performance. The variability of the group as measured by the standard deviation, is also relatively low in comparison to the total population.

Hypothesis G1 holds that the conglomerate group would grow most rapidly on all variables except GDPS and GEPS. This hypothesis is not supported by the results. The hypothesis predicts

Table 6-7

Financial Performance by Strategic Category for Growth Variables, 1970-1976

STRATEGIC CATEGORY

Growth Variable		Single	Dom-Vert.	Dom-Con.	Dom-Link	Dom-Unr.	Rel-Con.	Rel-Link	Unrelated	Cong.
GTINC	Mean	.1155	.0559	.1732	.1921	.0978	.1897	.1289	.1466	.2677
	Std.Dev.	.1273	.2285	.0902	.1789	.1118	.1203	.1227	.1454	.1405
GCFLOW	Mean	.1158	.0452	.2018	.1531	.0484	.1499	.1679	.1449	.1709
	Std.Dev.	.3376	.3157	.2101	.1263	.2243	.1350	.2147	.3028	.2851
GSALES	Mean	.0772	.1064	.1336	.0798	.1177	.1429	.1524	.1400	.2438
	Std.Dev.	.0988	.1472	.1449	.1169	.1122	.1056	.1493	.1223	.1885
GDPS	Mean	.0432	-.0299	.1574	.0849	.0482	.1373	.0879	.1011	.1055
	Std.Dev.	.1781	.2098	.1343	.1256	.1573	.1335	.1317	.1542	.1221
GEBIT	Mean	.1172	.1547	.2419	.2059	.1383	.2369	.2431	.2257	.3297
	Std.Dev.	.2665	.1957	.1412	.1164	.1928	.1261	.2270	.2462	.2204
GPAT	Mean	.1059	.0533	.2570	.1632	.1144	.2270	.1680	.1650	.3387
	Std.Dev.	.3567	.3192	.2201	.2294	.1885	.1252	.3374	.3017	.3332
GPATP	Mean	.1057	.0366	.2400	.1988	.1251	.2291	.1727	.1830	.3284
	Std.Dev.	.3642	.3557	.2005	.1395	.2043	.1284	.3374	.3108	.3178
GBVEQ	Mean	.1217	.0568	.1747	.1528	.0854	.1532	.1446	.1305	.2353
	Std.Dev.	.1343	.2209	.0900	.0752	.1170	.0767	.1061	.1318	.1238
GEPS	Mean	.0791	.0285	.2066	.1299	.0671	.1590	.1241	.1394	.1825
	Std.Dev.	.2254	.2577	.1626	.1779	.1701	.1368	.2211	.2295	.1849
GTIFE	Mean	.0688	.0470	.1127	.0928	.1359	.1197	.1234	.0880	.2116
	Std.Dev.	.0909	.0838	.0995	.0914	.1573	.0952	.1247	.1113	.1605

correctly on ten of the eleven growth variables. The conglomerate group was the most rapidly growing on all variables as predicted except for GCFLOW. On this variable, instead of leading the strategic categories, the conglomerate group, whose cash flow grew at 14.49 percent, fell behind the Dominant-Constrained category whose cash flows grew at an average of 20.18 percent. On the two variables on which the conglomerates were expected to lag, namely GEPS and GDPS, this group were the second most rapid growth category. The rankings on all the growth variables are given in Table 6-8 below.

Table 6-8

Rankings by Strategic Category on all Growth Variables

Growth Variable	RANK								
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th
GTINC	CON	D-L	R-C	D-C	UP	R-L	S	D-U	D-V
GCFLOW	D-C	CON	R-L	D-L	R-C	UP	S	D-U	D-V
GSALES	CON	R-L	R-C	U-P	D-C	D-U	DV	D-L	S
GDPS	D-C	R-C	CON	UP	R-L	D-L	D-U	S	D-V
GEBIT	CON	R-L	D-C	R-C	UP	D-L	D-V	D-U	S
GPAT	CON	D-C	R-C	R-L	UP	D-L	D-U	S	D-V
GBVEQ	CON	D-C	R-C	D-L	R-L	UP	S	D-U	D-V
GEPS	D-C	CON	R-C	UP	D-L	R-L	S	D-U	D-V
GTFE	CON	D-U	R-L	R-C	D-C	D-L	UP	S	D-V

The pattern presented in Table 6-8 suggests that two other strategic groups are producing very high rates of growth. These are the Dominant-Constrained and Related-Constrained groups. Conversely, the Single and Dominant-Vertical groups are seen to be growing relatively slowly or almost every variable analyzed.

In order to gauge the growth performance of the major strategic categories the Single, Dominant, Related and Unrelated groups were analyzed. The results are presented in Table 6-9 below.

Table 6-9

Growth Performance by Major Strategic Category

Growth Variable		Major Strategic Category			
		Single	Dominant	Related	Unrelated
GTINC	Mean	.1155	.1437	.1627	.2020
	Std. Dev.	.1273	.1562	.1235	.1537
GCFLOW	Mean	.1158	.1407	.1579	.1568
	Std. Dev.	.3376	.2318	.1724	.2908
GSALES	Mean	.0772	.1152	.1471	.1874
	Std. Dev.	.0988	.1362	.1250	.1623
GDPS	Mean	.0432	.0909	.1154	.1031
	Std. Dev.	.1781	.1681	.1331	.1384
GEBIT	Mean	.1172	.2037	.2397	.2732
	Std. Dev.	.2665	.1598	.1753	.2372
GPAT	Mean	.1059	.1786	.2008	.2444
	Std. Dev.	.3567	.2519	.2412	.3238
GPATP	Mean	.1057	.1759	.2040	.2495
	Std. Dev.	.3642	.2415	.2420	.3179
GBVEQ	Mean	.1217	.1350	.1494	.1784
	Std. Dev.	.1343	.1355	.0896	.1370
GEPS	Mean	.0791	.1373	.1435	.1591
	Std. Dev.	.2254	.2003	.1773	.2084
GTFE	Mean	.0688	.0984	.1213	.1445
	Std. Dev.	.0909	.1067	.1076	.1477

Despite the fact that the average of major category of "unrelated" firms is lowered by the "unrelated-passive" sub-category, this category shows a superior growth rate for eight of the ten variables analyzed. The "single" business category by contrast, produces the slowest growth rate on every variable.

The advantages of the Unrelated strategy are further emphasized by the variability of these growth rates as measured by the standard deviation of the growth variables. When compared with the "Single" business category, despite the relatively high growth rates achieved, the "unrelated" group has lower Standard Deviation Values on six of the ten variables. Probably the most "telling" comparison is made by examining the GSALES, GEBIT and GPAT variables. The "unrelated" group expanded sales at 243 percent of that of the single group, and produced a growth in EBIT and PAT of 233 percent and 231 percent of that of the Single Business firms respectively. Although experiencing higher sales variability with a standard deviation of 16.23 percent compared to 9.88 percent for the single group, the "unrelated" group experienced lower standard deviation values of 23.72 percent and 32.38 percent for GEBIT and GPAT while the "single" group produced values of 26.65 percent and 35.67 percent respectively. Thus despite higher sales volatility the "unrelated" group was able to smooth EBIT and PAT fluctuations considerably.

In response to the argument that the conglomerate and Unrelated-Passive are different strategies given Berg's findings regarding the differing structure of their corporate head office staff, the growth performance can be compared by analyzing the data in Table 6-7 above.⁶

The strategies are radically different in growth performance. The Conglomerate group is vastly superior to the "Unrelated-Passive" group with average GPAT growth more than double that of the "Unrelated-Passive" group while standard deviation values are comparable at 30.17 percent and 33.32 percent respectively. Hypothesis G1 and G2 are thus accepted since performance on all the growth variables are as predicted except for GCFLOW.

Hypothesis G3 stated:

The more diversified firms occupying those strategies deemed to be more diversified will exhibit growth rates greater than less diversified strategies. Thus the rank order in terms of growth variables GTINC, GTFE, GCFLOW and GSALES will be Unrelated, Related, Dominant and Single.

This hypothesis is confirmed and the predicted direction of the rapidly growing strategies is even more striking than that expected. The "more-diversified" strategies are faster growing than the more industry bound strategies on every variable. It has been anticipated that the "more-diversified" firms would grow rapidly as a result of their more aggressive, external growth orientated strategy. However, problems of control and integration were expected to affect the remaining variables adversely. However, the evidence points not only to more rapid

but also more stable growth as evidenced by the standard deviation data.

Since the Unrelated and Related groups were expected to be operating in areas where their "core-skills" were less likely to bring about increased effectiveness and efficiency it was hypothesized in Hypothesis G4 as follows:

The Dominant-Constrained group will produce the best overall performance from a growth point of view and product at least above average performance.

The ranking data presented in Table 6-8 shows that the Dominant-Constrained group showed the most rapid growth in variables GCFLOW, GDPS and GEPS. This group ranked second in variables GPAT and GBVEQ, third on variable GEBIT, and fourth on variable GTINC and fifth on GSALES and GTFE. However, the conglomerate group shows an even more constrained and high performance pattern. The Dominant-Constrained group do produce the fastest growth on variables GDPS and GEPS as predicted by Hypothesis G1. The hypothesis nevertheless is rejected and the Dominant-Constrained group, whilst producing above average growth lagged far behind the Conglomerate group on a number of variables.

Since the more diversified strategies, characterized by the Unrelated and Related strategies are likely to experience more numerous requests for capital resources due to their entry into growth markets, Hypothesis G5, anticipating a cash stringency situation in these strategies, stated:

The Unrelated and Related categories will produce a slower rate of dividend growth.

Analysis of the dividend payout ratio data reveals that the hypothesis must be rejected. The average payout and GDPS data are given in Table 6-10 below.

Table 6-10

Average Dividend Payout Ratios and Growth in Dividends

Per Share for all Sub-Categories: 1970-1976

Strategic Sub-Category	Dividend Payout Ratio Average	GDPS
Single	.5987	.1059
Dominant-Vertical	.5831	.0533
Dominant-Constrained	.6276	.2570
Dominant-Linked	.6551	.1632
Dominant-Unrelated	.4757	.1144
Related-Constrained	.6521	.2270
Related-Linked	.6194	.1680
Unrelated-Passive	.5756	.1650
Conglomerate	.6167	.3387

The results show that Hypothesis G5 is not supported by the evidence. Apart from the 25.70 percent dividend growth rate of the Dominant-Constrained group, the diversified firms show relatively high average payout ratios and dividend growth rates. This tendency may be due to the more diversified firm's propensity to adopt the external/take over route to growth. Since firms prefer to use their shares to pay for an acquisition and may be attempting to use dividends to support their share prices. Based on the evidence, the hypothesis is rejected.

The industry-bound strategies of Single Business and Dominant-Vertical are likely to have experienced low growth over the period. Hypothesis G6 stated:

Single business and Dominant-Vertical firms will have growth rates significantly lower than other strategies.

This hypothesis is accepted since the Single Business group does not rank higher than seventh on any variable and the Dominant-Vertical group is last on seven of the nine variables measured. These two groups, as can be expected, do not achieve the population's mean performance on any variable.

Hypothesis G7 states:

Dominant-Constrained and Dominant-Linked firms will achieve superior performance in terms of growth than Dominant-Unrelated firms.

This hypothesis provides a useful framework to analyze a group of Dominant Business firms that have been unable or unwilling to diversify to an extent exceeding 30 percent of their operations. This group is substantial in number and constitutes 39.21 percent of the population. The Dominant-Unrelated group does not qualify as superior growth firms since they exceed the population mean on only two variables - GSALES and GTFE. The other Dominant Business categories exceed the population means consistently. This hypothesis is thus accepted.

6.4.1.2. Statistical Analysis

This study analyzes the performance and risk of ALL the quoted industrial firms on the Johannesburg Stock Exchange that followed the same strategy as defined by the amount and manner of diversification. Thus all values are for the total population and any difference is significant. Other studies have extracted samples from a population and thus are subject to statistical error. This study analyzes the total population and consequently avoids these problems. In addition, more firms are included in this study. For example, the Single Business group alone has almost as many firms as Rumelt had in his total sample of firms.⁷ This study has 98 firms in the Single Business category while Rumelt analyzed a sample of 100 firms drawn from the "Fortune 500."

However, in order to broaden the applicability of this study it was decided to examine the differences in means of the firms in the population to establish whether the performance differences were statistically significant. The results are presented in Tables 6-11, 6-12, and 6-13 for the major strategic groups, the Unrelated group divided into Unrelated-Passive and conglomerates and the sub-categories respectively. The major groups, the sub-categories and separated Unrelated sub-categories are distinguished by the codes CAT4, CAT9, and CAT5, respectively.

TABLE 6-11"F"-Ratio Results for Major Groups (CAT 4)

Growth Variables	"F" Statistic	Statistical Significance
GTINC	3.469	0.0169
GCLFOW	0.328	0.8051
GSALES	7.508	0.0001
GDPS	2.578	0.0540
GEBIT	6.275	0.0004
GPAT	2.316	0.0760
GPATP	2.453	0.0636
GBVEQ	1.743	0.1536
GEPS	2.079	0.1032
GTFE	5.128	0.0018

The statistical results given in Table 6-11 above show clearly that the differences between the major category means are statistically significant, that the differences are not attributable to chance and that strategic category does "matter" in respect to growth performance. The only exceptions from a statistical point of view are GCFLOW and GBVEQ which are significant at the 80.5 percent and 15.36 percent level.

TABLE 6-12

"F"-Ratio Results for Five Categories (CAT 4)

Growth Variables	"F" Statistic	Statistical Significance
GTINC	4.251	0.0024
GCFLOW	0.264	0.9006
GSALES	7.218	0.0000
GDPS	1.928	0.1060
GEBIT	5.235	0.0004
GPAT	2.478	0.0444
GPATP	2.359	0.0538
GBVEQ	2.759	0.0282
GEPS	1.649	0.1622
GTFE	6.972	0.0000

The results of further fragmenting the four major groups into five groups by separating the Conglomerate group from the Unrelated-Passive group are also very meaningful in statistical terms. Statistical significance between the CAT 5 means has improved for GTINC, GSALES, GPAT, GPATP, GBVEQ, and GTFE. Using this distinction the GBVEQ has become significant while the significance values for GCFLOW, GDPS and GEPS have deteriorated. The overall conclusion is that in growth terms, the distinction between the Unrelated-Passive and the Conglomerate group is a meaningful one.

The overall power of the methodology is further demonstrated when the major groups are divided into the nine categories defined in Chapter 5. The statistical results are given in Table 6-13 below.

TABLE 6-13
"F" Statistics for Nine Sub-Categories (CAT 9)

Growth Variables	"F" Statistic	Statistical Significance
GTINC	4.399	0.0001
GCFLOW	0.992	0.4424
GSALES	3.971	0.0002
GDPS	3.971	0.0002
GEBIT	3.129	0.0021
GPAT	2.324	0.0199
GPATP	2.205	0.0274
GBVEQ	3.449	0.0008
GEPS	2.609	0.0092
GTFE	4.549	0.0000

These results are more favorable than expected. Apart from GCFLOW, all variables show statistical significance at the 0.05 level and seven are significant at the 0.01 or lower level.

6.4.1.3 Growth Analysis Summary

The findings show conclusively that the strategic posture which South African industrial firms have adopted towards diversification, has an important influence on growth performance. The companies were divided into categories of nine, four and five sub-groups and differences between the category means are shown to be significant. In growth terms, the seven hypotheses developed in Chapter 5 and which were based on the theory of corporate development and growth, were accepted in five cases, rejected in one and produced mixed results in another.

6.4.2 The Evaluation of Return Performance

The evaluation of return is an important aspect of any analysis of corporate performance since it constitutes one of the two components by which value and wealth are measured. It is however, subject to considerable difficulties in measurement. The general formula is:

$$\text{Return} = \frac{\text{Profit/Income}}{\text{Investment}}$$

The problems in measuring return are concerned with both numerator and denominator. The calculation of profit is subject to many different definitions and valuations. Problems arise in the measurement and valuation of sales, cost of goods sold, inventory valuation, the treatment of expenses such as

advertising, promotional expenditure, research and development and depreciation. The saying that "profit is what you define it to be" is not without truth. The problems do not stop at the definition of profit but extend to the valuation of the investment. The difficulties in the valuation of assets purchased ten, fifteen and twenty years ago are now further complicated by the high, fluctuating rates of inflation. These issues need not be explored in depth here but are raised to stress that the "return" results presented here are of limited value - these limitations do not preclude the analysis of such data but require that the interpretation be more cautious and the weight given this analysis in the overall evaluation be reduced accordingly.

6.4.2.1. Analysis of Returns and Testing of Hypotheses

The returns performance of the highly diversified group of firms was explored in Hypothesis R1 which proposed that:

Unrelated-Passive firms will produce
superior returns to Conglomerate
firms

This hypothesis was founded on the theory that the Unrelated-Passive group, which has been shown by Berg to have radically different head office structures will produce a different performance record to the conglomerate group. The large staff oriented structure of the Unrelated-Passive group implies greater managerial skill and control and this particular structure can be expected to produce increased profitability and hence returns.

The results in Table 6-14 show that the difference in performance is not in the predicted direction. The Unrelated-Passive group are shown to have earned lower returns on invested capital than the conglomerate group and below the population average - the difference between the two categories is almost 2.5 percent per annum. This means that the conglomerate group's return on invested capital averaged 17.25 percent above that produced by the "Unrelated-Passive" group. The variability of the returns are also not as expected. The conglomerates have grown more rapidly and have entered unrelated areas by take-over - the combination of aggressive entry and high growth could be expected to produce high ROIAT variability but the evidence shows that they have been able to smooth returns. The hypothesis is thus rejected.

Hypothesis R2 explored the relative effectiveness of the "constrained" strategy. The hypothesis states that:

The "constrained" strategies will produce superior returns than "Linked", "Unrelated", "Vertical" and Single Business Strategies.

The "constrained" strategy ensures that core skills are exploited most advantageously since all diversifying efforts are "constrained" to the central product/market area. In the "Linked" strategy by contrast, the core skills are related to the central product/market area by a much more tenuous linkage system. The findings are presented in Table 6-15 below.

The comparison between the Unrelated-Passive and Conglomerate group is a valid one since both have specialization ratios of less than 0.7. The two groups are thus considered to be equally diversified. The two strategies are distinctive from a structural point of view and this difference should be measurable in some tangible way. The previous section has shown the conglomerate group to be the leading strategy from a growth viewpoint - the larger head office orientation of the Unrelated-Passive group with its expected control emphasis should produce a superior "return" performance. The results of the comparison of the ROIAT variable are given in Table 6-14.

TABLE 6-14

"Unrelated-Passive" and Conglomerate Performance
on Return on Invested Capital: 1970-1976

<u>Strategic Category</u>	<u>Mean Return 1970-1976</u>	<u>Standard Deviation</u>
Unrelated-Passive	.1374	.141
Conglomerate	.1611	.043
Differential	.0237	.0980
Total Population	.1410	.1830

TABLE 6-15

Return on Invested Capital: Constrained StrategyVs. All Other: 1970-1976

Strategy	Major Category	Mean Return		Standard Deviation	
		ROIAT	ROEAT	ROIAT	ROEAT
Constrained	Dominant	.1659	.2618	.0530	.1100
	Related	.1681	.2639	.0470	.1240
Linked	Dominant	.1424	.2173	.0450	.0850
	Related	.1243	.2334	.0480	.1450
Vertical	Dominant	.0700	.2035	.2570	.1370
Unrelated		.1486	.3437	.1060	.2770
Single Business		.1431	.2076	.270	.088

The hypothesis is accepted. The "constrained" strategies provide remarkably good average performance on both ROIAT and ROEAT. These categories lag behind only one category in ROEAT - namely the Unrelated group. The Dominant-Vertical category is identified as a particularly unattractive strategy with an ROIAT performance of 7.0 percent over the period.

The aggressive and risk taking nature of conglomerate firms is believed to be evident by high levels of debt usage to enable them to grow faster than average and to gear profit returns to relatively high ROEAT levels. It was thus hypothesized that:

Conglomerate firms will have experienced lower returns on investment but will be more highly geared than the less aggressive and industry bound Single and Dominant Categories.

The means of the 4 relevant strategic categories are given in Table 6-16.

TABLE 6-16

Comparison Between Conglomerate Single and
Dominant Categories on Return on Invested Capital
And Debt Ratio

<u>Strategic Category</u>	<u>ROIAT</u>	<u>Debt Ratio Average</u>
Conglomerate	.1611	.4611
Single Business	.1431	.4349
Dominant Business	.1329	.4353

The findings reveal that the conglomerate category did not experience lower returns as hypothesized and their ROIAT mean was, on average, 12.58 percent and 21.12 percent above that of the Single and Dominant category firms respectively. These above average returns were, however, geared to high Returns on Equity by the use of moderately higher levels of debt. The hypothesis is accepted in part.

In his analysis of the relative performance of the major strategic categories in the developed economic environment of the United States, Rumelt found that the ranking of categories in terms of ROIAT was: Related, Single, Dominant and Unrelated⁸. It was hypothesized that:

The rank order for the major strategic categories in terms of return on invested capital will be - Related, Single, Dominant and Unrelated.

The results comparing the United States and South African experience are given in Table 6-17 below:

TABLE 6-17

Major Strategic Category Return on Invested Capital

Rankings: United States Vs. South Africa

Major Strategic Category	Return on Invested Capital			
	United States		South Africa	
	Return	Rank	Return	Rank
Single Business	.1081	2	.1431	3
Dominant Business	.0964	3	.1329	4
Related Business	.1149	1	.1531	1
Unrelated Business	.0949	4	.1486	2

Thus, the rankings are found to be different. The leading major category is still found to be the Related Business

category but in the developing economy, the unrelated firms are seen to provide a better return on invested capital. Similarly, the single business firms are seen to fall in ranking in the smaller, less developed economy. A note of caution in the interpretation of these results is required once again. The time frames over which these two studies are different and the economic conditions vastly different and should be interpreted accordingly.

The United States experience suggests that in terms of ROIAT no generalizations regarding the strategy most likely to produce superior returns can be made. This is due to the United States ranking running from a reasonably diversified strategy (Related) to a non-diversified strategy (Single Business). The South African results are more consistent with the diversified strategies (Related and Unrelated) superior to the less diversified strategies (Single and Dominant). The hypothesis is repeated since the less developed economy appears to favour higher levels of diversification when measured on ROIAT.

In order to examine the performance of the sub-categories the following hypothesis was proposed:

The rank order for the strategic categories in terms of return on invested capital will be - Dominant-Constrained, Related-Constrained, Single, Related-Linked, Dominant-Linked, Dominant-Vertical, Dominant-Unrelated, Conglomerate and Unrelated-Passive.

This hypothesis is based on Rumelt's findings in the United States. The results for both the United States and South Africa are given in Table 6-18:

TABLE 6-18

Sub-Category Return on Invested Capital Rankings:

United States Vs. South Africa

Strategic Sub-Category	Return on Invested Capital			
	United States		South Africa	
	Return	Ranking	Return	Ranking
Single Business	.1081	3	.1431	5
Dominant-Vertical	.0824	8	.0700	9
Dominant-Constrained	.0217	1	.1659	2
Dominant-Linked	.0869	7	.1424	6
Dominant-Unrelated			.0994	8
Related-Constrained	.1197	2	.1681	1
Related-Linked	.1043	4	.1243	4
Unrelated-Passive	.0940	6	.1374	7
Conglomerate	.0956	5	.1611	3

When ROIAT performance is fragmented into the strategic sub-categories, the South African findings show a reasonably similar pattern of performance when compared to the United States results as revealed in Table 6-17 above. Rumelt's results show the highly diversified Unrelated-Passive and Conglomerate groups at the lowest end of the ranking scale and

the Dominant and Related Constrained categories leading the field. These results also suggest that increased diversity improves ROIAT since the South African findings show that three of the top four rankings are occupied by "more diversified" groups. A striking aspect of Table 6-18 is the high ranking of third obtained by the conglomerate group when compared to the United States ranking of fifth. This provides strong support for the conclusion that the less-developed economy provides high returns to a more diversified strategy. The results require that the hypothesis be rejected.

6.4.2.2 Returns Analysis Summary

This section has analyzed the Return to Invested Capital and Return on Equity by Strategic Category. The hypotheses have been based largely on Rumelt's pioneering study in a developed economic setting and the results in the developing economy have been contrary to those expected in most cases. The most striking finding has been the fact that based on ROIAT results, increased diversification provides significantly superior results when compared to other strategies in the developing economy. This study has focused largely on ROIAT as the measure of performance as the ratio is not influenced and has been adjusted for the effect of leverage.

The Return on Equity ratio, although important, is dependent primarily on the Return on Investment performance of the firm. In addition, the following section which applies Capital Asset Pricing model theory to evaluate the strategic categories, is a more comprehensive and valid measure of performance than the simple Return on Equity ratio.

In summary, the return performance of the categories has been shown to be significantly different. However, the return ratios have serious limitations since they measure only return - a relatively meaningless concept unless risk is considered simultaneously.

6.4.3. The Evaluation of Risk

The study of economic issues is often complicated by the lack of common yardstick to measure the effects, if any, of different policies and strategies. As has been demonstrated in previous sections of this Chapter, the impact of a particular strategy is difficult to assess - while a strategy may provide excellent growth in profits, the return on investment may be less than that available by investing in firms adopting a different strategy. A large variety of factors may affect the growth and returns of a particular firm.

This study seeks to apply theories and constructs developed in other academic areas to the study and evaluation

of business strategy. The financial economists have developed a method to measure corporate performance and which is able to simultaneously evaluate both risk and return. This method, described in Chapter 4, is known as Capital Asset Pricing Model Theory. (CAPM)

A following section presents the results of the tests and analyses of corporate strategy in the context of risk/return as developed in CAPM theory. The theory has been tested empirically and has wide support as the most efficient technique in the measurement of investment return and risk. This study is the first attempt to apply CAPM theory to the managerially orientated diversification system proposed by Wrigley and refined by Rumelt.

6.4.3.1. Testing the General Hypotheses Relating to Risk

The first two hypotheses tested are more general in nature and do not utilize CAPM theory. Theory and evidence presented by Smith and Schreiner predicts that the conglomerate group will be reasonably efficiently diversified as the many different divisions are likely to operate in diverse and negatively correlated industries. They can thus be expected to generate returns which have low variability. It was hypothesized that:

Conglomerates will achieve lower rates of return variability than other categories as measured by the variable SDROI.

This hypothesis is accepted since the conglomerate group exhibits low levels of SDROI. The standard deviation values for the various categories are presented in Tables 6-14, and 6-15 above and reveal that the conglomerate group experienced a standard deviation of ROIAT of 4.3 percent. This is the lowest value as predicted by the hypothesis and is considerably less than the population average of 18.3 percent.

The conglomerate group was also expected to employ higher levels of debt. The following hypothesis was developed.

The conglomerate group will possess higher than average debt ratios.

Tables 6-5 and 6-16 above show that the debt ratios of conglomerates were slightly higher than average - but not unduly so given the apparent stability of returns and profits as discussed earlier. However, the ratio of equity to invested capital is revealing and enables a direct comparison between the United States and South Africa to be made. The findings are given in Table 6-18.

TABLE 6-18

Ranking of Strategic Sub-Categories in Terms of Equity/InvestedCapital Ratio: United States and South Africa

Strategic Sub-Category	South Africa				United States		
	Ratio in 1970	Ratio in 1976	Percentage improvement (deterioration) Over Period	Average Value 1970-1976	Rank	E/C Ratio	Rank
Single Business	81.6	83.1	1.84	81.00	3	78.1	5
Dominant-Vertical	80.7	76.3	(5.45)	77.93	6	72.4	8
Dominant-Constrained	82.4	78.3	(4.85)	79.77	4	80.7	2
Dominant-Linked	76.0	78.9	3.82	81.14	2	75.8	6/7
Dominant-Unrelated	88.0	84.1	(4.43)	84.73	1		
Related-Constrained	85.5	72.1	(15.67)	77.87	7	80.0	3
Related-Linked	81.8	73.4	(4.16)	75.74	8	79.8	4
Unrelated-Passive	84.2	69.6	(17.34)	75.06	9	83.0	1
Conglomerate	82.3	76.3	(7.29)	78.61	5	59.1	9

Note: $\text{Equity/Capital} = \frac{\text{Total Shareholders Interest}}{\text{Total Invested Capital}}$

The first factor of interest in Table 6-18 is that in 1970, when the United States and South African results are comparable, the ratios are not radically different although the South African population is slightly more highly geared than the United States sample. The South African results also show that apart from two categories, namely the "Single" and "Dominant-Linked" categories, all categories showed a deterioration in the ratio over the period. A further factor of interest is that the South African categories provide a pattern in that the highest ratios (and hence most favourable) tend to be those strategies that are less diversified whilst the diversified categories are clustered in the less favourable range. No such pattern is evident in the United States' data. This adds weight to the argument that more diversified firms are able to support higher levels of debt - partially due to their ability to weather cyclical business conditions.

The hypothesis, based on earlier studies and confirmed by Rumelt's study, that conglomerates will have higher levels of debt is not accepted. The total population average in South Africa over the period 1970-1976 is 79.26 percent and that of the conglomerate group is 78.61. The conglomerates are thus acceptably close to the population average. The Debt-Ratio values of the South African population is presented in Table 6-5. The conglomerate average over the period is 46.11 percent while the population average is 45.26 percent - once again a not unacceptable difference.

6.4.3.2. Testing Risk Hypotheses Using the CAPM

As stated in Chapter 5, due to the concern that low volume shares quoted on the Johannesburg Stock Exchange may be volume bound, only shares with an average volume in excess of 200,000 shares traded per annum for 1975 and 1976 were included in the population of "beta" firms. This group, consisting of 87 firms is the total population of shares/firms for which the beta values are considered "reliable" and thus differences between means are significant.

The first hypothesis developed was as follows:

Conglomerate firms will have beta values not significantly different from all other firms in the population.

This hypothesis is based on the theory that a well diversified conglomerate will have a risk and return profile similar to that of the market. The means of the conglomerate group and all other firms is given in Table 6-20.

TABLE 6-20
MEAN VALUES OF BETA FOR CONGLOMERATE GROUP
AND ALL OTHER BETA FIRMS

Strategic Categories	N	Mean of Beta	"t" Statistic	df.	Significance
Conglomerate	15	0.9342	0.40	85	0.693
All Other	72	0.8767			

It will be noted that despite the fact that the difference between the beta means of 0.9342 and 0.8767 are significant on their own, the "t" statistic is also calculated. The "t" statistic of 0.40 at 85 degrees of freedom is not significant and thus the hypothesis is accepted. If the statistical analysis is ignored, the difference is significant, as has already been stated, but the difference is not material and the "portfolio" of conglomerate firms, within which betas which had a range from 1.974 to 0.402 are included, has a mean beta which is 6.56 percent above the mean of all other beta firms. The hypothesis is thus accepted.

It was hypothesized that firms that operated in a single industry or were heavily dependent on a particular industry would possess high systematic risk. Thus:

The rank of the strategic categories in terms of beta values will be Single, Dominant, Related and Unrelated.

The mean values of beta for each of the major categories are given in Table 6-21. The conglomerate group is distinguished from the "Unrelated Group" in this table.

TABLE 6-21

BETA VALUES FOR MAJOR STRATEGIC CATEGORIES

Major Strategic Category	Number of Observations	Mean Beta Value	Rank
Single Business	19	0.857	2
Dominant Business	30	0.977	4
Related Business	15	0.377	1
Unrelated-Passive	6	0.986	5
Conglomerate	15	0.934	3

The hypothesis is not accepted since the beta values do not decline with increasing diversification as hypothesized. No discernable pattern is evident from the beta values. In order to establish whether the 5 category breakdown is statistically meaningful since the findings presented in Table 6-14 suggest that the conglomerates have produced higher returns or invested capital at lower variability - which should contribute to lower risk at higher return, an analysis of variance was performed. The "F" statistic obtained is $F=3,10$ and with 4 and 80 degrees of freedom is significant at the 0.02 level. This is further, strong evidence of the validity of Wrigley's major categories to distinguish between firms on a risk/return basis.

In order to test the validity of the sub-categories suggested by Rumelt on a risk/return basis, the beta values for

all nine sub-categories were calculated and the means were compared. The findings are presented in Table 6-22.

TABLE 6-22

MEAN VALUES FOR BETA FOR THE NINE SUB-CATEGORIES

Strategic Sub-Category	Number of Observations	Mean Beta Value	Rank
Single Business	19	0.857	4
Dominant-Vertical	6	0.972	6
Dominant-Constrained	9	1.089	8
Dominant-Linked	10	1.092	9
Dominant-Unrelated	5	0.548	2
Related-Constrained	9	0.793	3
Related-Linked	6	-0.247	1
Unrelated-Passive	6	0.986	7
Conglomerate	15	0.934	5

These results were also tested for statistical significance. The "F" statistic is $F=4.11$ and with 8 and 76 degrees of freedom is significant at the 0.0001 level. This means that the differences between the sub-category means are statistically significant. Rumelt uses the "Standard

Deviation of Earnings per Share" as his measure of risk.⁹

This variable is inadequate as a measure of risk. Rumelt commenting on the fact that his measure (SDEPS) does not distinguish adequately writes, ".....(the evidence suggests) that a composite measure of risk and return might prove more sensitive to category effects."¹⁰

Rumelt did not attempt to adjust for leverage in measuring risk. Hamada¹¹ and Rubenstein¹² have proposed a methodology which enables an adjustment to be made to the "levered" beta which enables the "unlevered" beta to be calculated. After effecting this adjustment is it possible to use the "unlevered" beta as a surrogate for "business risk" since:

$$\text{Total Risk} = \text{Financial Risk} + \text{Business Risk}.$$

The diversification strategy of a firm will affect only the business risk component - thus if the means of "unlevered" beta are non-statistically different from one another this would imply financial risk is the major component and determinant of systematic risk. If, on the other hand, the means are found to be significantly different after adjustment for leverage, this would mean that business related factors play an important role in the determination of systematic risk. It would also provide support for the conviction that strategy impacts on systematic risk since the major categories and/or sub-categories are able to distinguish between the "unlevered" beta values.

It was thus hypothesized that:

The "business" related risk component measured by the "adjusted" beta which eliminates the effect of financial leverage and hence financial risk, will produce a rank ordering of strategic categories as follows: Single, Dominant, Related and Unrelated. The Single, "Dominant-Vertical" and "Dominant-Unrelated" sub-categories will all exhibit high business risk.

The beta values which were adjusted for leverage (BETAUL), were calculated for the major and sub-categories. The Unrelated group was again separated into Unrelated-Passive and Conglomerate sub-groups. The results are presented in Table 6-23 and 6-24.

TABLE 6-23

UNLEVERED BETA VALUES FOR MAJOR STRATEGIC CATEGORIES

Major Strategic Categories	Number of Observations	Unlevered Beta = BETAUL	Rank
Single	19	0.646	2
Dominant	30	0.794	5
Related	15	0.445	1
Unrelated-Passive	6	0.733	3
Conglomerate	15	0.679	4

These results show that significant differences still exist between strategic categories. To test for statistical significance the "F" statistic was calculated and was found to be: $F=2.37$ and significant at the 0.06 level. Thus, although significance has fallen from 0.02 and 0.06 - the evidence points to the fact that business risk is an important component of systematic risk and that the major strategic categories provide a useful framework to distinguish between different levels of such risk.

TABLE 6-24

UNLEVERED BETA FOR STRATEGIC SUB-CATEGORIES

Strategic Sub-Category	Number of Observations	Unlevered Beta = $BETA_{UL}$	Rank
Single Business	19	0.646	3
Dominant-Vertical	6	0.701	6
Dominant-Constrained	0	0.890	9
Dominant-Linked	10	0.829	8
Dominant-Unrelated	5	0.663	4
Related-Constrained	9	0.565	2
Related-Linked	6	0.265	1
Unrelated-Passive	6	0.733	7
Conglomerate	15	0.679	5

The differences between the means of the sub-categories are also statistically significant as $F=1.71$ and is significant at the 0.109 level.

The sub-category analysis identifies two clusterings of strategy based on "unlevered" beta. The lowest "business risk" strategies appear to be the "Related-Constrained" and "Related-Linked" groups. These groups are lowest in "unlevered" beta terms - while the groups with the highest "unlevered" beta are the "Dominant-Constrained" and "Dominant-Linked" firms. The conglomerate group, in keeping with their reasonably efficiently diversified "portfolios" and moderate leverage position analysed earlier, remain in the mid-range with a ranking of 5 in Table 6-24 and 4 in Table 6-23 above.

The hypothesis requires that the ranking on major strategic category be according to diversification. The hypothesis is rejected since the single category does not obtain the highest "unlevered" beta and thus is not perceived to possess the highest "business risk". Similarly, the Single, Dominant-Vertical and Dominant-Unrelated groups do not exhibit significantly high "unlevered" beta values - indeed, the "Dominant-Constrained" and "Dominant-Linked" are perceived to have even higher risk. The hypothesis is thus rejected on both counts.

Treynor's statistic is a measure which enables the analyst to rank portfolio performance in terms of both risk and return. In discussing this statistic, Treynor refers to the ranking of funds. This statistic is, however, equally applicable to portfolios of firms as grouped in this study. Treynor states:

"We have seen that, consistent with any specified level of the market rate of return, there is associated with each fund a range of combinations of expected portfolio return and risk. The slope of the portfolio-possibility line measures the rate at which the individual investor increases the expected rate of return of his portfolio as his burden of portfolio risk increases. A comparison of slopes among funds provides a means of rating funds which transcends variations in individual investors' attitudes toward risk. Although the slopes vary just as the market rate of return varies, it can be proved that the ranking of the funds represented remains unchanged. The relative rankings can be read directly from the characteristic lines of funds to be compared.

Differences in ranking based on the characteristic lines can be quite significant for individual investors, even though they take varying attitudes toward risk. Also, the differences are independent of market fluctuations. Because the ranking measure has these properties, it provides a useful basis for reviewing the performance of fund management." (13)

In order to gauge the overall risk/return profile of the categories it was hypothesized as follows:

When measured using Treynor's Statistic, the rank ordering will be as follows:
 Conglomerate, Related-Constrained,
 Related-Linked, Dominant-Constrained,
 Dominant-Linked, Dominant-Vertical,
 Dominant-Unrelated, Single and Unrelated-Passive.

The findings based on the Treynor Statistic by the major strategic categories and sub-categories are given in Tables 6-25 and 6-26 respectively.

TABLE 6-25

TREYNOR STATISTIC FOR MAJOR STRATEGIC CATEGORIES

Major Strategic Category	Number of Observations	Treynor Statistic	Rank
Single Business	19	-0.628	4
Dominant Business	30	-0.919	5
Related Business	15	0.511	1
Unrelated-Passive	6	-0.507	3
Conglomerate	15	-0.411	2

These mean values provide a "F" statistic of F-1.75 and the differences between means are significant at the .147 level. Although meaningful since the means in Table 6-25 are for the total population - the statistical measure is not encouraging. The ranking is however, regarded as important since the mean value for the "Unrelated" group is ranked

second and the conglomerate sub-category is shown to provide a return, commensurate with the risk; that is, above the average of -0.4831 for the total population and superior to that suggested by all previous studies. The findings for the sub-categories are presented in Table 6-26 below and are presented in ranked order.

TABLE 6-26

TREYNOR STATISTIC FOR STRATEGIC SUB-CATEGORIES

Strategic Sub-Categories	Number of Observations	Treynor Statistic	Rank
Related-Linked	6	1.613	1
Dominant-Unrelated	5	0.043	2
Dominant-Linked	10	-0.064	3
Related-Constrained	9	-0.224	4
Conglomerate	15	-0.411	5
Unrelated-Passive	6	-0.507	6
Single Business	19	-0.628	7
Dominant-Vertical	6	-1.139	8
Dominant-Constrained	9	-2.256	9

The total population mean is - 0.4831 and thus the Treynor statistic for the first five sub-categories in Table 6-26 has produced above average returns. The "F" value

calculated to measure the statistical significance between the sub-category means in Table 6-26 is $F=2.93$ and is significant at the 0.007 level.

Rumelt also attempted to rank the sub-categories and used a statistic which he termed the "Risk Premium Ratio" (RPR) which is calculated as follows:

$$RPR = GEPS - \frac{\text{Risk Free Rate of Return after tax}}{SDEPS}$$

The rankings based on this statistic for the sample extracted from the United States economy are compared with the South African results which were calculated using the most rigorous Treynor statistic are compared in Table 6-27 below.

TABLE 6-27

RISK PREMIUM RANKINGS BY MAJOR AND

SUB-CATEGORIES: UNITED STATES AND SOUTH AFRICA

<u>Strategic Category</u>	<u>United States Ranking</u>	<u>South African Ranking</u>
<u>A. Major</u>		
Single Business	4	3
Dominant Business	3	4
Related Business	1	1
Unrelated Business	2	2

TABLE 6-27

(continued)

Strategic Category	United States Ranking	South African Ranking
<u>B. Sub-Categories</u>		
Single Business	5	7
Dominant-Vertical	7	8
Dominant-Constrained	2	9
Dominant-Linked	8	3
Dominant-Unrelated	1	2
Related-Constrained	4	4
Related-Linked	6	1
Unrelated-Passive	3	6
Conglomerate		5

Rumelt's findings are relatively mixed - that is, no distinct clusters are apparent. However, closer analysis reveals that the "Constrained" strategies rank first and second. Thus, the "constrained" type strategy appears to provide relatively good return premiums based on the risk of the strategy in the mature, developed economy.

The South African results are strikingly different from those of the United States. The "linked" strategies are ranked first and third and bracket the second and fourth

placed Dominant-Unrelated and Related-Constrained group. The results in the less developed economy suggest that the more diversified "linked" and "unrelated" strategies are superior performers. The impression of the higher premium being granted to the more diversified strategies is strengthened by the fact that the Conglomerate and Unrelated-Passive sub-categories are ranked fifth and sixth. The first six rankings are all occupied by the more diversified strategies while the worst risk premium cluster consists of the less-diversified, industry based categories.

6.4.3.3 Summary of Risk Analysis

The analysis of risk reveals significant differences between diversification strategies in terms of risk. In general, the higher debt usage levels, which imply high financial risk, and identified as a feature of conglomerate capital structure in the developed, United States economy, are not associated with South African conglomerate firms. The average values for the Equity/Capital and Debt Ratios are only marginally above the population average.

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<u>CHAPTER 7</u> Research Conclusions and Implications.	
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7. RESEARCH CONCLUSIONS AND RECOMMENDATIONS

7.1. Introduction

This research on the impact of strategy, defined as the extent and manner of diversification, has analysed the financial performance of 278 firms over a seven year period. The study has been based on methodology developed by earlier researchers whose work has shown that the methodology is able to distinguish between different strategies and predict performance according to theories in marketing and organisational behaviour.

It has also been possible to compare the population of South African industrial firms with the more developed economies of the United States, the United Kingdom, France, Italy and West Germany. The developing South African economy is facing important strategic issues. It is necessary to more fully understand the unique environment within which South African firms find themselves and to more accurately predict the trends that are likely to develop as the economy matures.

7.2. Synopsis of Findings

The findings indicate that South African firms appear to be following a trend toward increased diversity of operations. This tendency toward increased diversity appears to be consistent with the pattern experienced in the developed economies. The rapidity of the move toward diversification may, however, not be as rapid as that experienced in the developed economies since these economies grew rapidly during the fifties and sixties, whereas the South African economy is

moving toward diversification during a period of slow growth in the global economy.

Analysis of corporate performance indicates that the categories of diversification are able to distinguish between different levels of financial performance and that the financial performance of strategies followed by firms in a developing environment is radically different from that in the developed economy.

The findings also show that strategy, as defined by the strategic categories, has an important impact on the risk of a firm as defined by beta. The fact that systematic risk, for which beta is a measure, is significantly affected by strategy, is an important finding. This result, which is not predicted by CAPM theory, prompted further investigation of the influence of strategy on business risk. By eliminating the affect of financial risk on the total systematic risk (measured by beta), it was possible to assess the impact of strategy on business risk. Once again, the effect is significant.

7.3. Summary of Findings

7.3.1. Composition of Population by Strategic Category

The developing economy shows important differences in composition from the developed economies. In 1976, South African firms can be grouped into two groups: a more "advanced" and a less "advanced" group. Some 75 percent of the firms were not diversified to any meaningful extent. This group, made up of the Single Business and Dominant Business categories, is

considerably larger than the more developed group which is made up of the Related and Unrelated categories. This latter group comprises some 25 percent of the population. Analysis of Table 6-2 above reveals that the strategic composition of South African firms in 1976 is not paralleled at any stage in any of the developed economies studied. The composition of the United Kingdom study in 1950 is 74 percent in the Single/-Dominant categories and 26 percent in the Related /Unrelated categories. Despite this apparent similarity, the firms in the economies are not at similar stages of development since closer analysis reveals that the South African group has a relatively large group of Unrelated firms in the population. The percentage of Unrelated firms in the United Kingdom and South African economies for the years 1950 and 1976 are 2,2 percent and 12,6 percent respectively. These findings show that South Africa possessed a relatively large group of highly diversified firms when compared to the United Kingdom at a similar stage of development.

The South African results show that a large number of firms have not diversified. The single business category comprises over one-third of all quoted South African firms. This percentage of firms suggests that South African firms, when viewed from a "Stage of Development" point of view, are some twenty years behind the firms in the developed economy. The composition by strategic category values for the different economies are reproduced in Table 7-1 to facilitate comparison.

Table 7-1

Composition of Firms by Strategic Category for South Africa in 1976 and the United States, France, the United Kingdom, Italy & West Germany for 1950

	<u>Percentage of Firms in Each Category</u>					
	1976 South Africa	United States	1950 France U.K.	Italy.	W.Germany	
Single	36	35	42	34	30	34
Dominant	39	35	21	40	24	26
Related	13	27	33	24	43	32
Unrelated	12	3	4	2	4	7

The two groups in the South African population are immediately visible. The Single categories are relatively similar, but this similarity ends when the remaining categories are considered. Firms in the developed economies had diversified more rapidly into the Related area and thus the percentage of firms in the Dominant group are less than the percentage for the South African population. Also, the Related group in the South African environment is small, while that for the developed economies is very much larger. The Unrelated group, on the other hand, reveals that a number of South African firms had diversified to a considerable degree. This group is, however, relatively small and grew out of the Stock Market boom of the late 1960's. The overall conclusion, is, however, that the majority of South African firms are still in Stage I and Stage II of Scott's model and the experience of the developed economies suggests that South African firms will continue to diversify over the next two decades.

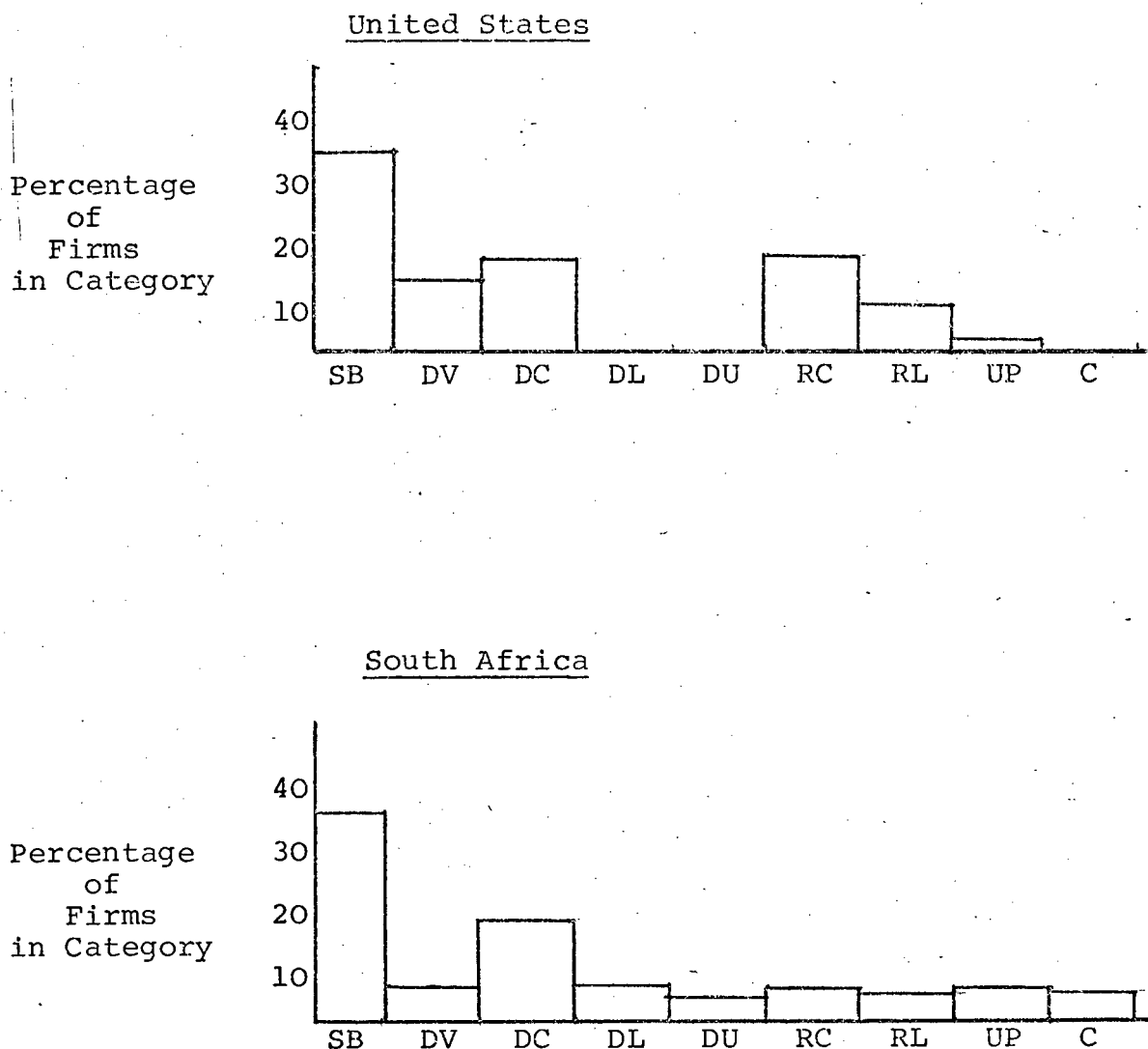
Analysis of the sub-categories in Table 6-2 above also reveals important differences between the South African and United States composition. The United States composition in

1950 is made up of a large group of Dominant-Vertical firms (15,7 percent) and of large percentages of Dominant-Constrained and Related-Constrained firms. South African firms, if the proposition that these firms in 1976 were at a stage of development equivalent to that of United States firms in 1950 is accepted, also contain a relatively large percentage of Dominant-Constrained firms (18,7 percent), but firms are very much more evenly spread over the remaining sub-categories.

The United States experience shows no conglomerate firms and the Dominant-Linked and Dominant-Unrelated groups contain less than one percent of the firms studied. The comparable South African figures are 5,8 percent for conglomerates and 7,9 percent and 5,0 percent for the Dominant-Linked and Dominant-Unrelated groups. The South African and United States compositions are illustrated in Figure 7-1.

Figure 7-1

Composition by Strategic Categories: United States
(1949) and South Africa (1976)



Where: SB = Single Business; DV = Dominant-Vertical;
 DC = Dominant-Constrained; DL = Dominant-Linked;
 DU = Dominant-Unrelated; RC = Related-Constrained;
 RL = Related-Linked; UP = Unrelated-Passive; and
 C = Conglomerate.

7.3.2. Performance Findings

The quantitative findings regarding performance are divided into three sections and are reviewed individually below.

7.3.2.1. Growth Performance Findings

The conglomerates lead the field from a growth point of view. This group of firms was the fastest growing in six, and second fastest in two and third fastest in one of the nine key growth variables analysed. Thus, this group was not below third fastest growing in any variable. However, the conglomerate strategy, being based largely on aggressive, take-over behaviour is expected to produce very high levels of growth and the real test of this group's performance lies in its return performance and overall risk profiles which will be discussed below in the relevant sections.

The "second best" growth performances were the "constrained" strategies. These two strategies are based on what has been described as "controlled diversification". These findings confirm results in the United States where the "Constrained" strategies ranked second and third in GSALES, GPAT and GEPS. When measured on the same variables, these strategies were ranked third and fourth on GSALES, second and third on GPAT and first and third on GEPS.

The United States results show that the Related-

Linked strategy is a relatively poor performer from a growth point of view. The Related-Linked group was ranked fourth, seventh and sixth on the variables GSALES, PAT and GEPS respectively, while the South African group is ranked second, fourth and sixth respectively. This suggests that the "Linked" strategy is considerably more successful in South Africa than in the United States from a growth point of view.

The overall growth analysis findings show that the less diversified strategies, namely Single Business, Dominant-Vertical, Dominant-Linked and Dominant-Unrelated, are poor performers. These firms are industry-bound and appear to be unable to generate higher levels of growth in their existing business areas and those that have attempted to diversify into fields that are not familiar, such as the approach adopted by the Dominant-Linked and Dominant-Unrelated strategies, have been unsuccessful. The Dominant-Constrained group is the only exception and the high performance of this strategy bears powerful testimony to the importance of the rule of "remaining close to the core skills" of a firm. The poor performance of the Dominant-Linked and Dominant-Unrelated strategies probably reflects diversification efforts that have attempted to remain reasonably close to the core skills of the firms, but have been unsuccessful due to an inability to correctly identify the existing core skills and success factors in a business or industry and have

thus resulted in a "negative synergy" effect.

The high performance firms have all adopted strategies which involve diversification to a relatively high degree. The only high performance strategy which does not involve diversification is the Dominant-Constrained strategy which was discussed above. Clearly the South African business environment provides high growth potential to diversified firms. The United States evidence is mixed and the composition of firms by strategic category has indicated that, at a comparable stage of development, the South African firms tend to be more diversified than firms operating in the more developed economies.

7.3.2.2. Rate of Return Performance

The Dominant-Constrained and Related-Constrained strategies are shown to produce the best Return on Invested Capital performance in the developing economy with returns of 16,81 percent and 16,59 percent respectively. This pattern is confirmed by the United States, but the rankings are reversed with values of 14,91 percent and 14,11 percent for the categories respectively. An important difference from the United States findings is that the conglomerate group rank third in ROIAT whereas this group ranked fifth in the United States. This difference in results is important since, in the United

States, the conglomerate group achieved an ROIAT value of 9,56 percent while the total sample in the study achieved 10,52 percent. Thus the conglomerate group were somewhat below average in the United States. In South Africa, on the other hand, the conglomerates achieved an above average ROIAT value of 16,11 percent while the average for the population was 14,10 percent. The ROIAT data provide strong evidence regarding the unattractive Dominant-Vertical strategy which produces an average of only 7,0 percent. Similarly, the Unrelated-Passive group who were expected to produce significantly above average returns performance, due to the assumption that they would be more likely to utilize professional managers, were shown to perform at a below average ROIAT.

The collapsing of the nine sub-categories into four major categories highlights the fact that, in South Africa, there appears to be a clustering of high and low performance strategies on a continuum of diversification. The more diversified group made up of the Related and Unrelated groups rank first and second on ROIAT with the less diversified group in third and fourth places. This clustering is clearly visible from the data presented in Table 6-17. The United States evidence, however, shows no clustering. Significantly, the Single Business group are ranked second while the Unrelated group are ranked fourth. Once again, diversity is favoured in the developing economic environment.

7.3.2.3. The Findings Relating to Risk

7.3.2. Analysis of Standard Deviation

Risk was defined as variability of earnings and when SDROI is used as a measure, the conglomerate group were found to exhibit very low levels of variation. The average value of SDROI for the population was 18,30 percent, whilst that of the conglomerate group was only 4,3 percent. All other sub-categories, except Single Business, exhibited higher SDROI values. The conglomerate group have been able to produce high growth, coupled with high returns at low levels of returns variability.

The risk of a firm can be divided into business and financial risk components. A portion of this financial risk is measured by the degree of financial leverage in the firm's capital structure. The conglomerate group of firms have been found to employ high levels of debt in the United States, but the evidence reveals that this does not hold true for South Africa. Conglomerates were found to have increased their leverage and that their Equity/Invested Capital ratio has deteriorated by 7,29 percent over the period. This deterioration, although significant, was not serious since this ratio for both the Related-Constrained and Unrelated-Passive groups had deteriorated even more rapidly. The findings also show that the more diversified firms tend to be more highly leveraged. No such clustering was found to exist in the United States. In addition, the findings show that South

African conglomerate firms are not as aggressive in their use of debt as their American counterparts.

7.3.2.3.1. Analysis of Systematic Risk

The risk profile of a firm is dependent on many different variables and the study has made use of CAPM theory to measure the overall risk profiles of firms. This theory was then applied to assess the business risk component of systematic risk as the betas were adjusted to eliminate the effect of leverage on beta. The application of the CAPM to the population data produced important results.

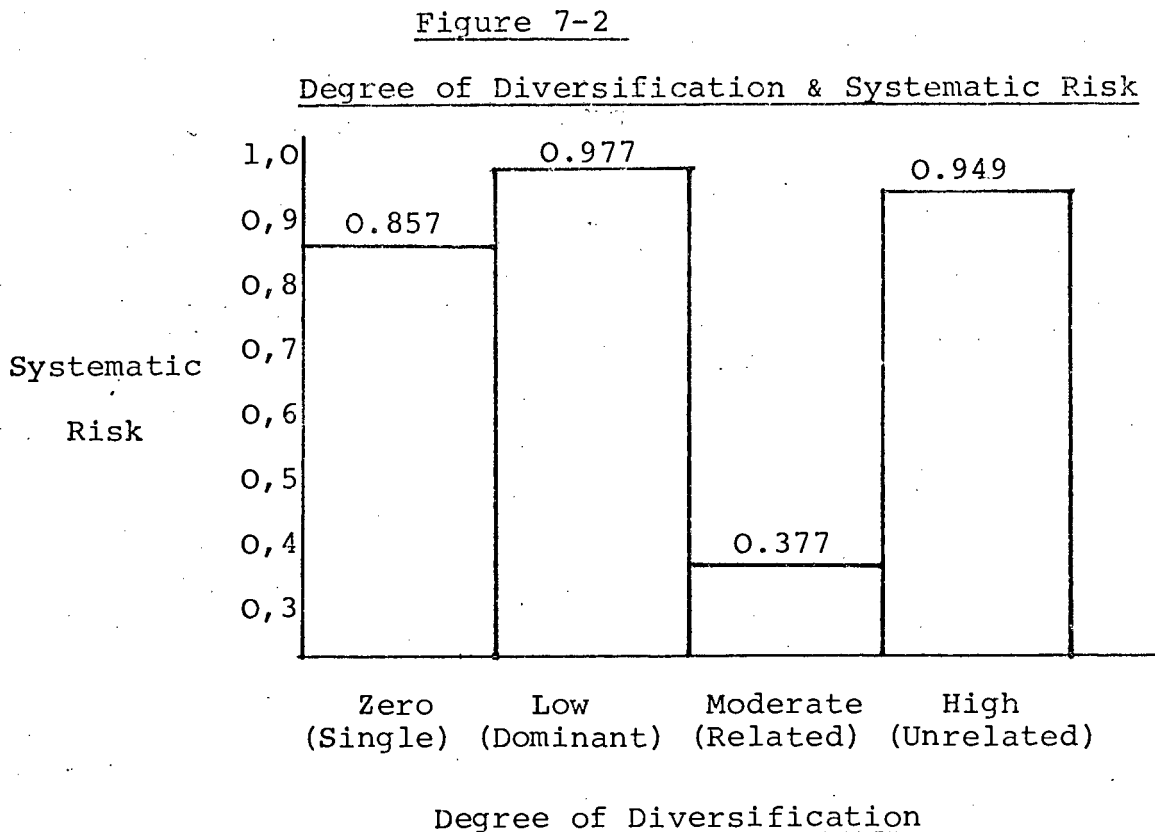
Firstly, the conglomerate group were shown to have beta values that were not significantly different from the betas of the total population. Secondly, the conglomerate firms, with their outstanding growth, returns, low returns variability and moderate gearing, are seen to rank fifth, when measured by beta. This indicates fairly high systematic risk. The Unrelated group, when taken as a whole, have a beta value of 0,949 and rank third in systematic risk behind the Related and Single Business categories. This beta value is above the population average 0,887. The findings reveal that beta does not decline with increasing diversification. Indeed, the theory of diversification suggests that increased diversification will cause beta to regress toward the mean for the population. The results indicate that the conglomerate

group and the Unrelated group taken as a whole, have above average beta values. Clearly, high levels of diversification are perceived as being high risk to the extent that beta values are above average. This suggests that investors are adding additional "units" of risk to these groups due to what may be termed "management risk". Concern that the management of Unrelated and Conglomerate firms do not fully understand the diverse operations of divisions and subsidiaries and that management may be unable to deal with a management crisis should one arise are examples of situations which give rise to increased "management risk".

The overall beta pattern shows that the Unrelated-Passive group are regarded as possessing the highest level of systematic risk. These firms are believed to be managed by professional managers and the results are surprising. These firms are expected to be well managed. Although this group produced average growth over the period, their return performance was disappointing, being low and suffering from relatively high variability as measured by SDROI.

A further interesting finding was that the Dominant-Constrained group had high beta values. This strategy produced outstanding growth and returns performance over the period. Thus the conclusion must be that high dependence on an industry, technology or product is regarded

as high risk. The Dominant group as a whole, with a beta value of 0,977, has the highest systematic risk. The fact that this group are diversified, albeit to a limited extent, appears to produce high systematic risk since the Single Business group have a lower beta value of 0,857. The market thus appears to favour no diversification or a reasonable degree of diversification since the Related group has the lowest beta with a value of 0,377. The pattern suggested by the findings is as illustrated in Figure 7-2.



Unfortunately, these findings cannot be compared with the experience in the developed economies since no previous research has been done in this area.

The results are all highly significant and show that the methodology is able to explain systematic risk - an important finding since no previous research has been able to explain and assess the impact of diversification on systematic risk.

7.3.2.3.2. Analysis of Beta Adjusted for Financial Risk

The results of this analysis show that, when the effects of financial leverage are eliminated from beta - the category differences are significant. Thus, the effect of strategy on the business risk component can be measured. The related group are the lowest systematic risk category and are followed by the Single Business category. This pattern is the same as the pattern for the unadjusted betas. The ranking changes dramatically thereafter since the more diversified group improve their ranking from third and fifth for unadjusted beta to third and fourth for unlevered beta for the Unrelated-Passive and Conglomerate groups respectively.

The related group with moderate levels of diversification prove to possess the lowest levels of business risk, whilst the Dominant strategies possess high business risk. The low beta for the Single Business group is unanticipated. Although the Single Business, Dominant-Unrelated and Conglomerate groups have unlevered beta values that are fairly clustered (the values are 0,646,

0,663 and 0,679 respectively), the findings again confirm that the Dominant type strategy is perceived, despite excellent financial performance in the case of the Dominant-Constrained group, to possess high business risk. The Dominant-Constrained group actually have the highest unlevered beta (See Table 6-24). One possible explanation is that the market believes these firms to be "unskilled" in the management of diversity and will have to prove the value of such a strategy and their ability and commitment to this strategy. Those firms that have been able to manage diversification and have continued to pursue this strategy are probably the occupants of the Related category which has been shown to have the lowest business risk. The Unrelated group are found to occupy the mid-range with respect to business risk and this is not unexpected given their relatively well-diversified portfolios.

The conclusion is that business risk is not solely dependent on internal operating leverage and dependence on a particular industry or product. The extent, manner and stage of diversification are very important determinants of business risk.

7.3.2.3.3. Analysis of Beta using "Treynor's Statistic"

"Treynor's Statistic" provides a quantitative measure of portfolio performance and enables a ranking

of portfolios to be made based on both risk and return. As such, it is a useful tool to rank the various strategic categories which are, of course, portfolios of firms which have adopted similar strategies to achieve their objectives. When the risk/return rankings provided by the "Treynor Statistic" are evaluated, the Related category is shown to be the superior strategy. The market prefers moderate diversification and is shown to penalize the industry and product-bound firms in the Single and Dominant groups since these latter strategies are ranked last in Table 6-25. A further observation of interest can be made by examining the ranking of the Unrelated-Passive and Conglomerate groups which make up the Unrelated category. These strategic categories had been ranked as "middle of the road" performers on both Beta and Unlevered Beta (see Tables 6-21 and 6-23). When ranked by the more meaningful "Treynor Statistic", this group is ranked second and confirms the impression that diversification is rewarded in the developing economy since the more diversified strategies, namely Related and Unrelated, are ranked first and second using this measure.

Unfortunately, no comparable data has been calculated for any of the developed economies and, thus, a comparative analysis between the South African and developed economy rankings was impossible. Rumelt employed

a crude measure to rank risk and return performance and the comparison between the United States and South Africa was presented in Table 6-27. The first four strategies are clustered in the area suggesting moderate diversification, and the first six, which include the two Unrelated categories, are all "more diversified" strategies. The results are different from those found in the United States where no such clustering is evident.

7.4. Implications of the Research

Since the end of World War II, the world economic system has undergone considerable change. South Africa, with its less developed economy, has lagged behind the development of the more mature economies, but has, nevertheless, been able to produce outstanding growth in its economy. The country has changed from a largely agricultural to a relatively sophisticated industrial nation. The country has overcome problems of infrastructure change and has been able to compete in world markets. The economic climate has become more competitive as multinational firms entered the rapidly growing South African market.

This study has shown that South African firms have tended to follow the behaviour of firms in the more developed economies and have diversified their operations. The structure of South African industry has changed and firms appear to have responded in very similar fashion to their counterparts in the developed economies. The research suggests that South African firms lag behind firms in the developed economies by approximately ten to twenty years. If this pattern of development continues to follow that of the mature economies, then South African firms will continue to move toward increased diversification. The Single Business group, which comprises some 34 percent of South African firms and the Dominant Group, which comprises some 39 percent of the firms, can be expected to move toward the Related and Unrelated groups at a fairly rapid pace.

The United States composition in 1970 is heavily weighted toward the more diversified strategies as they comprise of 64,6 percent of the firms studied. The comparable figure for South Africa is only 25,4 percent. This move toward increased diversity will require considerable change in the organisational structures, reward and control systems and demands on management.

South African firms will tend to become more divisionalised in their organisational structures and very much more emphasis will be placed on profit and return measures of performance. The less efficient firms, which adopt low performance strategies, will be forced to change their managerial strategies and styles radically if they are to survive.

The Johannesburg Stock Exchange has proved to be a very poor source of new capital for firms and the move towards increased diversification and divisionalisation means that the capital generation and allocation process will be incorporated into the firm and not be left to the capital markets. Management in a diversified firm decide where to invest and what the sources of those funds will be. The capital markets, when needed to supply funds, will tend to supply those funds to the corporation as a whole and will not be concerned with the division or divisions that will receive these funds. This trend has important implications for both bankers and managers and will require new skills.

The speed at which the move toward diversified operations will take place is difficult to gauge, but may be slower than that experienced in the developed economies. The move toward diversification in these economies took place during rapid, global economic growth. This growth is likely to be slower in the future.

South African firms tend to be more evenly spread across the strategic categories than firms in the United States and may mean that South African firms have been more innovative in their approach to strategy selection. Rather than following the strategy of other firms which led to an "uneven population" across the strategies, as in the United States, the South African results imply that firms have been more willing to follow their own intuition and instincts. There were a large number of conglomerate firms in South Africa in 1976 while there were none in the United States at a comparable stage of development. This implies that South African firms were more willing to experiment with new strategies and may explain why the conglomerate group are found to be a relatively high performance group in South Africa and why research in the United States has been unable to identify superior performance from United States based conglomerates.

In addition, the "more diversified" strategies have produced very good performance and this implies that the

diversified firm, with its emphasis on ROI and profits and aggressive and innovative managerial style, is able to take advantage of the economic conditions provided by the developing economy. This is an important finding since this phenomenon does not occur in the mature economy. The diversified firms produce only average performance in a mature economy.

The finding that the "constrained" strategies are superior performers when measured on growth and return, and yet are seen as fairly high risk firms, raises the question of whether firms in these strategies are investing for future growth. The markets in which they operate at present may be growing rapidly and providing good returns - yet this group is perceived to have high systematic risk. This implies a speculative image among investors. The rapid growth markets in which they are operating may mature and these firms may be unable to maintain their records. Thus firms that are growing rapidly and generating funds should begin investing in new, and perhaps unrelated, areas. The high systematic risk which these firms exhibit implies that the market is not satisfied with high growth and good returns alone, and that these measures may be too short term orientated to permit the accurate assessment of performance.

The research findings relating to risk are of considerable importance since management should be concerned with both return and risk. The findings reveal that the market

perceives certain strategies as being high risk since strategy has a quantifiable impact on systematic risk and on business risk. Consequently, the management of a firm which adopts a particular strategy should be aware of the impact that the strategy will have on the risk profile and therefore, on the value of this firm. The objective of management is to create wealth, and the value of a firm is heavily dependent on the risk element which flows from the strategic posture of the firm.

This research also has certain implications for the education of management in South Africa. If the trend toward diversification of operations occurs as expected, this will mean that firms will require more skilled general managers. Diversified firms have typically used the divisionalised structure to manage their operations, and these divisions are managed by executives whose roles are no longer specialist or functionally orientated but are roles that require the skills of a generalist. Few would argue that the real value in any firm lies in its management and their ability to adapt to a changing environment and to integrate different functional departments within the firm. The research has shown that firms are responding to their environment by diversifying and these diverse divisions will require general managers to integrate the management functions within the firm.

South Africa will need large numbers of well-trained executives with general management skills over the next ten to twenty years. These general managers will be required to fully understand their particular product-market environment and direct operations. Top management will be freed from operating management and will be able to concentrate on overall strategy formulation and to channel funds generated by the so-called "cash cows" to the new product and fledgeling divisions that will provide the growth and returns in the future.

The Graduate Schools of Business in South Africa will thus be called upon to provide the training for the general managers required in the future. Business firms should support the business schools - not only by providing students but also by an active involvement in the teaching of managerial skills and by providing the schools with case study materials and similar assistance.

7.5. Future Research Possibilities

This study is the first to explore the effect of diversification strategy on performance and return in the developed economy and which has investigated the impact of strategy on systematic and business risk. The possible future areas for research which would provide the management of firms operating in the developing economies with a framework for strategic analysis and decision making that is more

meaningful than that produced in the developed economy are:-

- 7.5.1. To evaluate the performance and risk of firms that adopt different organisational structures in the developing economy. At what stage of diversification is it optimal to shift to the divisionalised structure? Does the manner of diversification (whether the strategy is vertical, constrained, linked or unrelated) make a performance and risk difference? Why?
- 7.5.2. To assess the managerial control and reward systems that are adopted by firms adopting different strategies and to determine whether these systems affect performance.
- 7.5.3. To determine the causes of the differences in performance within a strategic category. Why are certain firms more successful than other firms that have adopted the same strategy? What is the impact of industry? Can these differences be explained by the reward measurement and control systems and by the corporate cultures and climates in the firms? Are the more diversified firms more innovative?

7.5.4. Why do the Unrelated-Passive group perform so poorly?

These firms have been found to exhibit high risk and poor growth and return performance yet are believed to be managed by more professional management. Are there any discernable differences between the "Diversified Majors" in the United States and those in South Africa?

7.5.5. Further research into the underlying determinants

systematic risk is needed. Management must be able to gauge the impact of strategic variables on the risk profile of the firm since this is a major determinant of the cost of capital. Thus, a more in depth research programme on the impact of strategy on the cost of capital would be of considerable value and interest.

7.6. Conclusion

A major problem today is the wide gap between the developed and developing countries. The developing countries, in order to survive, are industrialising rapidly but are finding that they are unable to compete effectively for a variety of reasons. A major premise of this research has been that firms in the developing countries have adopted management strategies that have proved to be successful in the developed economy, but that were not suited to their particular stage of development and which were inappropriate in their unique economic environment.

A level of sophistication between the developed and developing nations in terms of markets, products, technologies, capital markets, distribution systems and managerial skills differs considerably. Yet the management of firms continues to behave and operate in a manner which often suggests a lack of appreciation of these important differences. This study has shown that:

- South African firms are between ten and twenty years behind United States firms in their development.
- The South African firms can be expected to continue to diversify placing considerable strain on, and requiring changes in, their organisational structures, measurement, reward and control systems. That there will be a shortage of skilled and experienced general managers in the future, unless management recognises the need for change and development and begins planning for and making the changes necessary to ensure corporate (and national) survival.
- That the type and manner of diversification strategy has an important effect on growth, and return performance.
- That "winning" strategies in the developed United States environment are not as successful in the local environment.

- That high levels of diversification produce above average performance in the developing economy, contrary to the findings overseas.
- That strategy has a significant impact on systematic risk. Other studies which have not employed the more managerially orientated methodology employed here have been unable to provide a satisfactory explanation of the effect of diversification on return and risk.
- Strategy, as defined in this study, has been found to affect the business risk component of total firm risk and reveals that the more diversified firm has a lower level of "unlevered systematic risk" than the less diversified firm.
- That strategy has an important influence on overall risk and return as measured by "Treynor's Statistic" and that the "more diversified" groups of firms are superior when measured using this technique.

These results are all different from those found in earlier studies. This is to be expected since the environments in economies at different stages of development are different for reasons discussed earlier. This study forms the base from which a number of different research projects should flow in order to provide management of firms in the developing economy with a better understanding of the determinants of growth

return and risk so that these managers will be better able to direct their firms in the directions which will ensure the most efficient utilisation of scarce resources.

APPENDIX I - REASONS WHY FIRMS DIVERSIFYSURVIVAL

- To offset a declining or vanishing market.
- To compensate for technological obsolescence.
- To offset obsolete facilities.
- To offset declining profit margins.
- To offset an unfavourable geographic location brought about by changing economic factors.

STABILITY

- To eliminate or offset seasonal slumps.
- To offset cyclical fluctuations.
- To maintain employment of the labour force.
- To provide balance between high margin and low margin products.
- To provide balance between old and new products.
- To maintain share of market.
- To meet the new products of competitors.
- To tie customers to the firms.
- To distribute risk by serving several markets.
- To maintain an assured source of supply.
- To assure an outlet for sale of the product.
- To develop a strong competitive supply position by offering several close substitute products.

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Productive Utilization of Resources

To utilize waste or by-product.

To maintain balance in vertical integration.

To utilize excess productive capacity.

To make use of product innovations from internal technical resources.

To capitalise destructive know-how.

To make full use of management resources.

To utilize excess marketing capacity.

To exploit the value of an established market position, trade name or prestige.

To keep pace with an ever increasing sale of technology.

To capitalize on company research with existing techniques as well as its advances in technology.

To capitalize on a firm's market contacts.

ADAPTATION TO CHANGING CUSTOMER NEEDS

To meet the demands or convenience of diversified dealers.

To meet the specific requests of important individuals and/or groups of customers.

To meet Government requests for national security.

To improve the performance of existing products (equipment), through adding accessories or complementary products.

GROWTH

- To counter market situation of present products.
- To reinvest earnings.
- To take advantage of unusually attractive mergers or acquisition opportunities.
- To stimulate the sale of basic products.
- To encourage growth for its own sake or to satisfy the ambitions of management or owners.

MISCELLANEOUS

- To realize maximum advantage from the tax structure.
- To salvage or make the best of previously acquired products or companies.
- To maintain a reputation for industrial leadership.
- To comply with the desires (or whims) of owners or executives.
- To strengthen the firm by obtaining new management and abilities.

APPENDIX IILIST OF FIRMS IN POPULATIONSINGLE BUSINESS

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- ✓ Aberdare Cables Ltd.
- ✓ African & Overseas Enterprises Ltd.
- ✓ African Cables Ltd.
- The African Clothing Factory Ltd.
- African Gate Holdings Ltd.
- Alex Ipworth Ltd.
- Alpha Free State Holdings Ltd.
- Amalgamated Laundries Ltd.
- ✓ Argus Printing & Publishing Co. Ltd.
- ✓ Associated Engineering S.A. Ltd.
- ✓ Aurochs Investment Co. S.A. Ltd.
- Bertrams Wines Ltd.
- Back Clothing Corporation Ltd.
- ✓ Beares Ltd.
- Bellandia Homes Investments Ltd.
- ✓ Berkshire International S.A. Ltd.
- M. Bertish and Co. Ltd.
- Bitcon Holdings and Trust Co. Ltd.
- Blaikie-Johnstone Ltd.
- ✓ Bradlows Stores Ltd.
- Buffalo Timber and Hardware Ltd.
- ✓ Burlington Industries Ltd.
- ✓ T. W. Beckett and Company Ltd.
- Capital Cartoria Motor Holding Ltd.
- ✓ Caxton Ltd.
- Chemical Holdings Ltd.
- Oldham and Son Africa Ltd.
- ✓ Claude Neon Lights S.A. Ltd.
- ✓ Coates Brothers S.A. Ltd.
- Consolidated Jersey Holdings Ltd.
- Consolidated Textile Mills Ltd.
- Coronation Brick Free State Ltd.
- ✓ Crookes Brothers Ltd.
- ✓ Delswa Ltd.
- Dugson Holdings Ltd.

- ✓ Duros Ltd.
- Eastern Province Newspapers Ltd.
- Elmar Holdings Ltd.
- Empisal South Africa Ltd.
- Eriksen Consolidated Holdings Ltd.
- Fairweather Fashion Holdings Ltd.
- ✓ Foschini Ltd.
- ✓ Frasers Ltd.
- ✓ Garlick Ltd.
- Golden Brown Brick and Tile Co. Ltd.
- Gooderson Hotels Ltd.
- Goodhope Concrete Pipes Ltd.
- Grand Bazaars Ltd.
- Gubb and Inggs Ltd.
- Harrowes Ltd.
- Hepworths Ltd.
- ✓ Highveld Steel & Vanadium Corp. Ltd.
- Illovo Sugar Estates Ltd.
- ✓ Imperial Cold Storage Supply
- ✓ Industrial Selections Ltd.
- James Brown and Hamer Ltd.
- ✓ John Orr Holdings Ltd.
- W. F. Johnstone and Co. Ltd.
- Katz and Lourie Ltd.
- Lucys Holdings Ltd.
- MacDonald Forman and Co. Ltd.
- ✓ Masonite Africa Ltd.
- ✓ Metro Cash and Carry Holdings
- Natal Consolidated Ind. Invest.
- Natal Steam Laundries Ltd.
- ✓ O.K. Bazaars 1929 Ltd.
- Picardi Hotelle Bpk.
- Premier Metal Co. of S.A. Ltd.
- Premier Portland Cement Rhod.
- Press Supplies Holdings Ltd.
- ✓ Progress Industries Ltd.
- ✓ Putco Ltd.
- ✓ Rex Trueform Clothing Co. Ltd.
- Rhodesian Cables Ltd.
- Robbs Holdings Ltd.
- Ropes and Mattings Ltd.
- Safnit Mills Ltd.
- Satmar Ltd.
- Scottish Cables S.A. Ltd.
- ✓ Sea Products SWA Ltd.
- ✓ Silverton Tannery Ltd.
- Simba-Quix Ltd.
- ✓ Sinclair Holdings Ltd.
- S.A. Associated Newspapers Ltd.
- South African Clothing Ind. Ltd.
- S.A. Woollen Mills Ltd.

- Swaziland Sugar Milling Co. Ltd.
- ✓ Trade and Industry Acceptance
- ✓ Towles Edgar Jacobs Ltd.
- ✓ Toyota South Africa Ltd.
- ✓ Utico Holdings Ltd.
- ✓ Union Cold Storage of S.A. Ltd.
- ✓ Union Steel Corp. of S.A. Ltd.
- ✓ Vaderland Beleggings Bpk.
- ✓ Veka Ltd.
- ✓ Vereeniging Refractories Ltd.
- ✓ Woolworths Holdings Ltd.

DOMINANT-VERTICAL

- B & S Furniture Company Ltd.
- Bruynzeel Plywoods Ltd.
- ✓ Cullinan Holdings Ltd.
- Dunswart Iron and Steel Works Ltd.
- Eddels Holdings Ltd.
- ✓ General Optical Co. Ltd.
- International Combustion Ltd.
- L.H.L. Engineering Holdings Ltd.
- Lawson Motors Group Ltd.
- ✓ Mooi River Textiles Ltd.
- Phil Morkel Meubileerders Bpk.
- Pilot Radio & Television Indust. Ltd.
- Rhodesian Pulp Paper Ind. Ltd.
- ✓ Sappi Ltd.
- Steel and Barnett Ltd.
- Stein Brothers Holdings Ltd.
- Stewards and Lloyds of S.A. Ltd.
- S.W.A. Fishing Industries Ltd.
- ✓ M & S. Spitz Footwear Holdings Ltd.
- ✓ Textile Mills 1974 Holding Ltd.
- Truworhts Ltd.
- ✓ Uniewyn Bpk.

DOMINANT-CONSTRAINED

- African Products Manufacturing Ltd.
- Bakers South Africa Ltd.
- Brick Clay Holdings Ltd.
- Bus Bodies S.A. Ltd.

Canadian Overseas Packaging Ltd.
 Columbus Holdings Ltd.
 Comair Holdings Ltd.
 Consolidated Glass Works Ltd.
 Dorman Long Vanderbijl Corp. Ltd.
 Duro Industries Ltd.
 ✓Edgars Stores Ltd.
 Eureka Rubber Company of S.A. Ltd.
 ✓Everite Ltd.
 Field Industries Africa Ltd.
 ✓Globe Engineering Works Ltd.
 ✓Goldfields Industrial Corp. Ltd.
 Greatermans Stores Ltd.
 ✓Gresham Industries Ltd.
 ✓Grinaker Holdings Ltd.
 ✓Gypsum Industries Ltd.
 Hendlers Metal Industries Ltd.
 ✓Hortors Ltd.
 ✓Jabula Foods Ltd.
 Katzenllenbogen Ltd.
 Kohler Brothers Ltd.
 Lamberts Bay Holdings Ltd.
 H. Lewis and Co. Ltd.
 ✓Lion Match Co. Ltd.
 Maccabee Industrial Finance Ltd.
 Massey-Ferguson S.A. Limited.
 • Mathieson and Ashley Ltd.
 ✓MacCarthy Group Ltd.
 ✓Metal Box Company of S.A. Ltd.
 ✓Metal Closures Group S.A. Ltd.
 Mitchell Cotts Ltd.
 ✓National Bolts Ltd.
 ✓National Trading Co. Ltd.
 Oudemeester Group Ltd.
 ✓Plate Glass & Shutterprufe Ind. Ltd.
 Premier Paper Mills Ltd.
 Prima Industrial Holdings Ltd.
 Rand Carbide Ltd.
 Reunert & Lenz Ltd.
 ✓South African Druggists Ltd.
 ✓Steel Metals Ltd.
 ✓Std. Brass Iron Steel Foundries Ltd.
 ✓Tegniese & Ind. Beleggings Bpk.
 ✓Tiger Oats & National Milling Ltd.
 Trio Rand S.A. Bpk.
 United Oceana Holdings Ltd.
 Williams Hunt South Africa Ltd.

DOMINANT-LINKED

- ✓ Berzack Brothers Holdings Ltd.
- ✓ Cementation Company Africa Ltd.
- De Beer Industrial Corp. Ltd.
- Dunlop South Africa Ltd.
- Evelyn Haddon & Co. Ltd.
- Finance Company Ind. Holdings Ltd.
- Hart Ltd.
- Howden Group South Africa Ltd.
- Natal Canvas Rubber Manufact. Ltd.
- Northern Free State Motors Ltd.
- Plascon-Evans Paints Ltd.
- ✓ Pretoria Portland Cement Co. Ltd.
- ✓ Rembrandt Beherende Beleg. Bpk.
- ✓ Rembrandt Group Ltd.
- Rhodesian Brick and Potteries Ltd.
- Rhodesia Cement Ltd.
- Russell Holdings Ltd.
- South African Marine Corp. Ltd.
- ✓ Trencor Ltd.
- S. M. van Achterbergh Ltd.
- ✓ Welfit Oddy Holdings Ltd.
- Wispeco Holdings Ltd.

DOMINANT-UNRELATED

- Capital Gold and Exploration Ltd.
- Charmfit Holdings Ltd.
- Coal By-Products & Investments Ltd.
- Hippo Holdings Co. Ltd.
- Hugh Parker Limited.
- Kaap Kunene Beleggings Bpk.
- Marine Products Ltd.
- Marshall Industrials Ltd.
- ✓ Metair Investments Ltd.
- Monis and Fattis Industries Ltd.
- ✓ Sakers Finance & Invest. Corp. Ltd.
- Samuel Osborne S.A. Ltd.
- ✓ South Atlantic Corporation Ltd.
- ✓ Suncrush Ltd.

RELATED-CONSTRAINED

- ✓ A.E. & C.I. Ltd.
- ✓ Afrikaanse Pers. 196= Beperk.
- ✓ Anglo Alpha Cement Ltd.
- ✓ ASEA Electric South Africa Ltd.
- ✓ Associated Furniture Companies Ltd.
- ✗ Autolec Ltd.
- ✓ Boumat Ltd.
- Brick and Potteries Company Ltd.
- Crown Mills Holdings Ltd.
- ✓ Edward L. Bateman Ltd.
- Gallo Africa Ltd.
- ✓ General Tire and Rubber Co. Ltd.
- Golden Arrow Investments Ltd.
- Hubert Davies and Co. Ltd.
- Industrial Investment Co. Ltd.
- Malcomess-Bakke Ltd.
- ✓ Murray and Roberts Holdings Ltd.
- Natal Chemical Syndicate Ltd.
- Ryan Nigel Corporation Ltd.
- ✓ Tollgate Holdings Ltd.

RELATED-LINKED

- Blue Circle Cement Ltd.
- C.N.A. Investments Ltd.
- Clarke Chapman Africa Ltd.
- Dermacult Ltd.
- C. J. Fuchs Ltd.
- ✓ L.T.A. Ltd.
- ✓ Metje and Ziegler Ltd.
- National Airways & Finance Corp. Ltd.
- Propan Ltd.
- Shipwrights and Engineers Hold. Ltd.
- S.A. Bias Binding Manufacturers Ltd.
- Primrose Industrial Holdings (U.K) Ltd.
- ✓ Sentrachem Ltd.
- Stuttaford and Co. Ltd.
- Tongaat Group Ltd.
- Wellworths Stores & Bazaars Ltd.

UNRELATED-PASSIVE

- ✓ Advance Holdings Ltd.
- ✓ Amalgamated Medical Services Ltd.°
- ✓ Bonuskor Limited
- ✓ Bomain Holdings Ltd.
- ✓ Curries Motors 1946 Ltd.°
- ✓ Desiree International Ltd.
- ✓ Diroyal Investments Ltd.
- ✓ Industrial and Commercial Hold. Ltd.
- ✓ Ovenstone Investments Ltd.
- ✓ Premier Industries Ltd.
- ✓ Rentmeesterbeleggings Bpk.
- ✓ Sand Consolidated Invest. Ltd.
- ✓ Searles Holdings Ltd.°
- ✓ G. H. Starck Ltd.
- ✓ Suiderland Development Corp. Ltd.
- ✓ S.A. General Industries Ltd.
- ✓ Teal Holdings Ltd.
- ✓ Turf Holdings Ltd.
- ✓ Woolfsons Holdings Ltd.

CONGLOMERATE

- ✓ Abercom Investments Ltd.
- ✓ Adcock Ingram (Chemists) Ltd.
- ✓ Anglo American Ind. Corporation Ltd.
- ✓ Anglo-Transvaal Industries Ltd.
- ✓ Barlow Rand Ltd.
- ✓ Calan Ltd.
- ✓ Elgin Fireclay Holdings Ltd.
- ✓ Federale Volksbeleggings Bpk.
- ✓ Huletts Corporation Ltd.
- ✓ Lonrho Ltd.
- ✓ Picardi Beleggings Bpk.
- ✓ Protea Holdings Ltd.
- ✓ Rennies Consolidated Holdings Ltd.
- ✓ South African Breweries Ltd.
- ✓ Scots African Finance Co. Ltd.
- ✓ W & A Investment Corporation Ltd.


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